

## THEORY/REVIEW MANUSCRIPT

# Fathers of Young Deaf or Hard-of-Hearing Children: A Systematic Review

Amy Szarkowski<sup>1,2,3</sup>, and Evelien Dirks<sup>4,5,\*</sup>

<sup>1</sup>Children's Center for Communication/Beverly School for the Deaf (CCCBSD), <sup>2</sup>Division of Developmental Medicine, Boston Children's Hospital, <sup>3</sup>Department of Psychiatry, Harvard Medical School, <sup>4</sup>Dutch Foundation for the Deaf and Hard of Hearing Child and <sup>5</sup>Department of Psychology, Utrecht University

\*Correspondence should be sent to Evelien Dirks, Dutch Foundation for the Deaf and Hard of Hearing Child, Lutmastraat 167, Amsterdam 1073 GX, The Netherlands (e-mail: e.dirks@uu.nl)

## Abstract

Much of the literature exploring the role of parents of children who are deaf or hard of hearing (DHH) has focused on mothers; yet, the involvement and perspectives of fathers is valuable and warrants attention. Following the PRISMA guidelines, this systematic literature review examined the peer-reviewed research that has differentially explored the experiences of fathers and mothers of young DHH children. Utilizing three databases (Web of Science, PsychINFO, Scopus) and spanning 50 years (1969–2019), 457 non-duplicated articles were identified that included the fathers of DHH children, birth to six years. Independent review of the titles, abstracts, and keywords by the authors limited these to 119. Full manuscripts were assessed for eligibility; 37 were deemed appropriate for inclusion in this systematic review. The papers included have been organized into the following themes: perspectives on parenting, parental stress and coping, parent-child interaction, involvement in early intervention, parental self-efficacy, and benefits of fathers' inclusion. Recommendations for future research include: (a) actively recruiting fathers in research, (b) differentially analyzing fathers' and mothers' experiences in research studies, (c) using information gleaned from research regarding father-child and mother-child interactions to guide interventions/programming, (d) recognizing the bidirectional influences of fathers and their DHH children, (e) moving beyond descriptive studies to explore fathers' influences on child outcomes, and (f) recognizing diverse family constellations.

In the mid-1970s, Michael Lamb, renowned child development scholar, described how the contributions of fathers to child development had been largely overlooked and underestimated (Lamb, 1975). Lamb argued for a new theory of child development that hypothesized that fathers play a vitally important role in their child's development, and in particular in their socialization, albeit a role that is qualitatively different from that of most mothers.

In a 1998 Supplement on Early Emotional Development in the journal *Pediatrics*, Pruett (1998) articulated that fathers make "definite contributions to infant development" (p. 1253), noting

that compelling research of father-infant attachment, father-infant interaction, and differences in paternal and maternal styles of interacting with young children.

Eighteen years later, the Committee on Psychosocial Aspects of Child and Family Health of the American Academy of Pediatrics, led by Yogman and Garfield (2016), published a Clinical Report on fathers' roles in the care and development of their children. This document highlighted a number of shifts that had occurred with respect to fathers' involvement, including (but not limited to) the increased amount of time fathers spend with children, the increased level of involvement of fathers with

Received August 7, 2020; revisions received October 21, 2020; accepted October 22, 2020

© The Author(s) 2021. Published by Oxford University Press. All rights reserved. For Permissions, please email: journals.permissions@oup.com

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited. For commercial re-use, please contact journals.permissions@oup.com

these children across the span of childhood, the increased role that fathers of children with disabilities play in their child's care (in the home and with medical professionals), and the increased understanding of the influence that fathers' physical and mental well-being has on their children.

Acknowledging the substantial impact of fathers' involvement on a variety of child outcomes—such as cognition, improved mental health, and a number of physical health conditions—Allport et al. (2018) argued for researchers and clinicians caring for families to shift from a focus on the mother-child dyad to incorporating the mother-father-child triad in their work. They proposed a behavioral model of factors the influence fathers' involvement that considers many factors, which they conceptualized as falling within three broad areas: fathers' attitude, the perceived norms pertaining to involvement, and fathers' sense of personal agency (p.749).

In a meta-synthesis that examined the experience of fathers raising children with Autism Spectrum Disorder, researchers explored fathers' experiences and perceptions of their experience in the role of fathers (Lashewicz, Shipton, & Lien, 2019). In addition to the three main findings of the review (i.e., adaptation and concern for the future, the importance of cultural context, and reverence for child and new opportunities), the review highlighted the need for father-oriented resources that recognize fathers' value in children's lives (p. 117).

Although studies of fathers of children with disabilities do exist, it is important to consider the experiences and perceptions of fathers of DHH, as these are likely to differ in important ways. Yet, the literature exploring the topic of fathers of DHH children is limited. Researchers have articulated the need to explore the role of fathers of children who are deaf or hard of hearing (DHH):

The paucity of research focusing solely on fathers continues to provide little understanding of how fathers are influenced by their child with a disability, the impact fathers have on that child, or how fathers influence other family members' interactions or perceptions of that child (Calderon & Low, 1998, p. 226).

Admittedly, the current systematic review is heavily weighted toward the experiences of hearing fathers, as this is what is currently documented in the literature. Yet, it is important to examine the experiences of fathers of children who are DHH should include both hearing fathers and deaf fathers as their experiences may differ. Given that the majority of studies of fathers of DHH children involve fathers with typical hearing, it can be important for readers to note that the majority of findings described in this systematic review are informed by that particular lens. Fathers who are deaf may have a different lens through which they see their experience. For example, DHH infants with deaf parents who communicate via sign language show greater gaze-following in early adult-infant communication compared to hearing controls (Brooks, Singleton, & Meltzoff, 2020). Deaf parents—including those who did and did not use sign language—have been described as employing effective communication strategies with their young DHH children, which has been linked to higher vocabulary scores for DHH infants with deaf parents when compared to DHH infants with hearing parents (Yoshinaga-Itano, Sedey, Wiggin, & Chung, 2017). While neither eye gaze nor DHH infant vocabulary is the foci of the present paper, these examples highlight the potential differential influences on the DHH child when their father is deaf.

To date, no overarching recognition of the importance of fathers of children who are DHH has been written in the literature, no guiding document arguing for the inclusion of fathers has been published, no meta-synthesis of the impact of fathers' involvement on their DHH children has produced, and no "call to action" to include fathers in research has been documented in the literature on fathers of children who are DHH.

## Rationale for the Present Study

Given their research interests in understanding young children who are DHH and their families, the authors of the present review found themselves questioning whether, as Lamb (1975) had suggested, the literature related to children who are DHH had also reconceptualized the role of fathers and begun to value understanding fathers' unique roles. The present study sought to explore—in the existing literature on parents and families that include young children who are DHH—the extent to which fathers have been included in studies and whether their responses were analyzed separately from mothers. To our knowledge, a review of fathers' experiences and perspectives within this context has not been previously undertaken.

This review has been conducted to systematically analyze the literature and identify existing gaps in knowledge on the topic of fathers of DHH young children. The authors utilized Best Practices guides for conducting systematic reviews (Pollock & Berge, 2018; Siddaway, Wood, & Hedges, 2019) and used the PRISMA Statement (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) by Moher et al. (2009) to ensure the highest quality standards were employed for this study.

## Objectives

The explicit questions asked by the authors, using PICOS guidelines (Moher et al., 2009), were as follows:

1. Participants—How and to what extent have fathers been included in studies of young children who are DHH?
2. Interventions/measures/instruments—What was being assessed, or what were the foci of the studies involving fathers (or fathers and mothers) of children who were DHH between birth-to-6 years of age?
3. Comparisons—If fathers and mothers were both included in a study, were the results of each reported separately? Did the researchers explicitly differentiate the contributions of fathers and mothers in the study and comment on the similarities and/or differences in their findings? If fathers of DHH children were compared with fathers of children who had a typical hearing or with fathers of children with disabilities, what was unique to the experience of being a father to a child who is DHH?
4. Outcomes/main findings—Were the outcomes described in terms of the fathers' experiences or perceptions or on the perceived influence of the fathers on their children? Descriptive studies that mentioned fathers, but not their experiences or perceptions, were excluded (e.g., papers that documented paternal genetic contributions to a hearing loss).
5. Study design—Did the study incorporate qualitative, quantitative, or mixed methods research approaches? All of these were included for this systematic review; however, single case studies were not.

## Methods

### Inclusivity/Exclusivity Criteria

**Inclusivity criteria.** The following criteria were established for inclusion in the review. Included papers must: (a) be peer-reviewed papers published in English prior to the end of August 2019, as this review commenced in September 2019; (b) mention fathers—either alone or in addition to mothers—in the title, abstract, or keywords; (c) describe fathers of DHH children birth to six years of age; and (d) utilize quantitative, qualitative or mixed methods approaches to research. Papers that met the inclusivity criteria are included in the descriptive table of studies (below). However, some manuscripts met the inclusivity criteria (e.g., mentioned fathers in the title or abstract), yet combined the parental responses of mothers and fathers in their results and discussion sections. As such, these were not included in the analysis of the present review; they are, however, identified and mentioned at the end of the Results section.

This systematic review is broad and inclusive in its conceptualization of fathers. For the purposes of this review, fathers could include stepfathers, adoptive fathers, single-parent fathers, fathers in relationships with other fathers, fathers in relationships with persons other than the child's mother, fathers who reside with the child or who reside elsewhere, or men who are not a child's biological father but are actively serving in that role. The authors have accepted the definitions of "fathers" employed by each of the studies in the review. Individual authors/author teams have defined "fathers" using their own parameters. All studies that expressly state that they are exploring fathers' experiences or perceptions were included.

**Exclusivity criteria.** Because the intent of this study was to explore the experiences and perceptions of fathers of young DHH children, studies whose foci were genetic, biological, or physiological in nature were excluded. Further, fathers' perceptions of their involvement early in the child's life are believed to be of particular significance, setting the stage for later involvement as the child grows. Studies of parents of DHH children typically involve those that examine children by age groups: infants, toddlers, early childhood, middle or late childhood, and adolescence. Given the importance of the early years of a child's life in terms of their development and their connections with caregivers, the researchers were most interested in the experiences and perceptions of younger children. By limiting the age of the children to birth-to-6 years, the researchers sought to understand the experience of fathers of DHH young children following the identification of hearing status, through the years of early intervention and preschool.

### Procedure

**Search strategy for identifying relevant studies.** Three separate electronic databases were searched: Web of Science, PsychINFO, and Scopus. These databases, respectively, cover a vast, broad range of science; behavioral and psychological studies; and the life, social, physical, and health sciences. The authors selected these databases in an effort to locate all of the relevant research since studies involving DHH children can be found in medicine and health journals, deaf-specific publications, and general academic journals that address psychological, social, and behavioral issues.

Three variables were combined for each search: fathers, children, and DHH. The terms used were as follows:

<fathers> AND <children OR toddlers OR infants> AND <hearing loss OR deaf OR hard-of-hearing OR hearing impairment OR cochlear implant>.

**Selection of studies for inclusion in the review.** Both authors independently reviewed each abstract and rated them against the inclusionary criteria. Manuscripts were independently rated red (excluded), yellow (potentially included; discussion required), or green (included). Through this process, the two raters agreed on the inclusion of all of the manuscripts with the exception of two papers (thus inter-rater reliability was 98.3%). These two manuscripts were then reviewed by both authors and the decision regarding inclusion was jointly made.

**Evidence synthesis.** Both researchers reviewed all of the included articles and independently generated groupings of similar papers. Then, together, the authors explored, discussed, and shared their rationale for the groupings. The groupings that emerged from each author were compared; both authors had identified the same concepts. With further discussion, labels were generated, and the papers were organized using six major themes.

**Documenting results.** The authors utilized the PICOS format to guide the investigation; however, a modified PICOS format has been used to present the findings from the systematic review. This was done to align with standardized reporting formats, yet also to capture the unique nature of the data obtained. For example, published research in this area has not yet included large scale studies of fathers' perceptions or experiences, nor have there been documented investigations of interventions. The original PICOS model suggests that researchers explore interventions; however, the authors have expanded that category by identifying the measures and instruments used by scholars to assess the construct they were investigating. Similarly, the authors have broadened reporting of outcomes to include the main findings of the studies reviewed. In Study Design, studies are described as using qualitative, quantitative, or mixed methods research approaches. Additional information has been provided that can be useful to readers about the study design, where applicable, such as identifying whether studies were cross-sectional or longitudinal (Figure 1).

## Results

The first peer-reviewed work that included fathers of DHH children, based on the results of this systematic literature review, was published in 1969. In the 50 years (1969–2019) covered by this systematic review, just 37 published articles were found that explore the experiences and perceptions of fathers of young DHH children. Most of the studies included in this review compared responses of mothers and fathers (86.5%); few studies focused solely on fathers (13.5%).

Since the initial publication that included fathers of DHH children, research and publishing requirements have become more stringent. Some of the early work on this topic, by objective standards, is not highly rigorous. In this systematic review, the authors do not comment on the strength of the arguments put forth in the papers nor on the quality or depth of the research; readers are free to make their own judgements.

Further, given the diversity of methodologies employed in the studies involving fathers, the different theoretical conceptualizations that researchers have used to explore fathers' experiences, and the variety of constructs measured across the studies that have included this population, no overarching synopsis of the literature in this area is (or can be) provided. This review

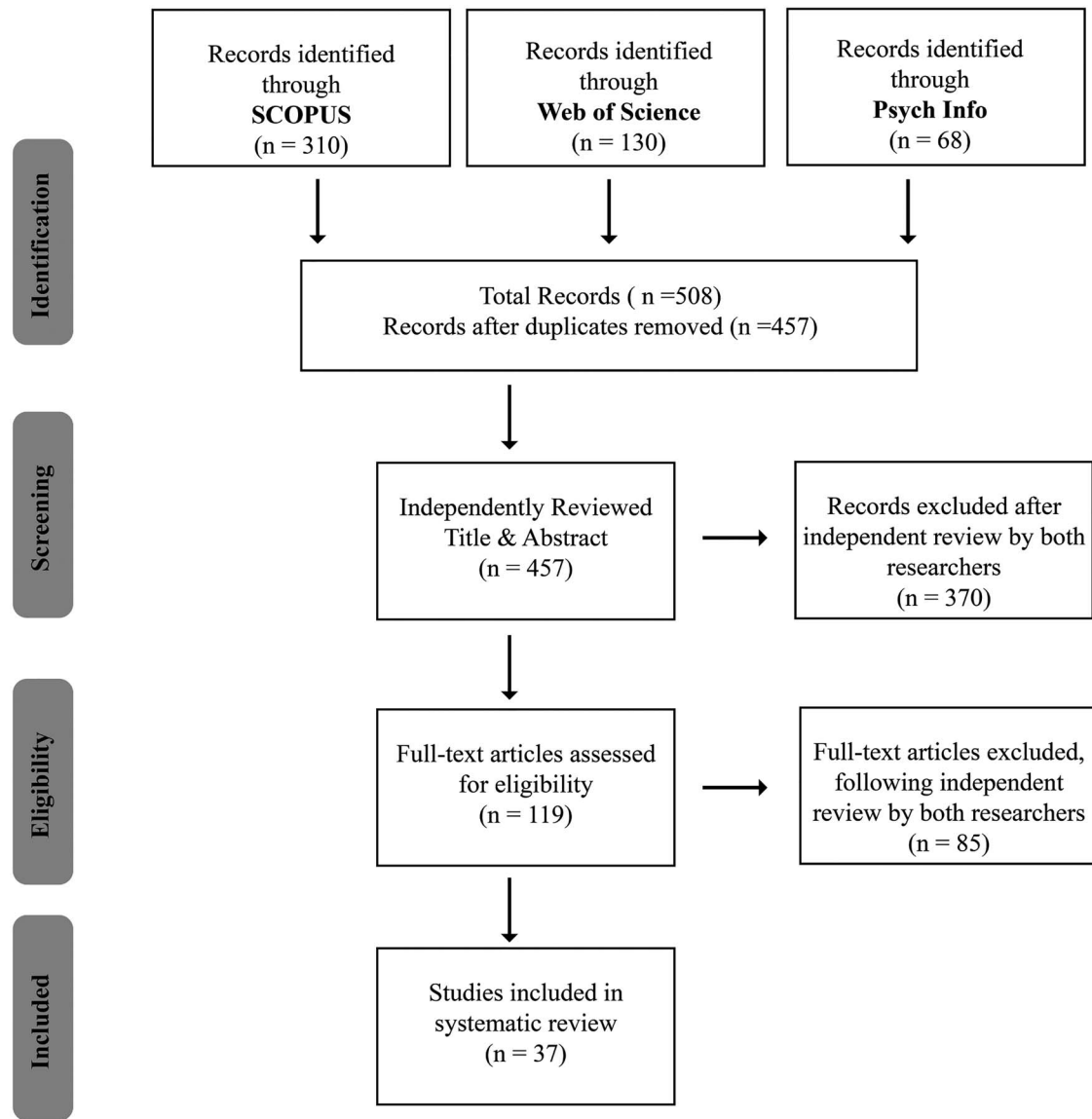


Figure 1 PRISMA recommended a flow diagram for a systematic review of the experiences and perceptions of fathers of young children (0–6 years of age) who are deaf or hard of hearing.

will make no attempt to arrive at the statistical meaning of the findings presented nor will it provide a meta-analysis of the manuscripts reviewed. Rather, the authors have undertaken a narrative systematic review (Siddaway et al., 2019). This narrative systematic review will serve as a historical account of the research of fathers' perceptions and experiences in the first 6 years of raising a child who is DHH.

The authors have categorized the information contained in the published papers into overarching themes: (a) perspectives on parenting, (b) parental stress and coping, (c) parent-child interaction, (d) involvement in early intervention, (e) parental self-efficacy, and (f) benefits of fathers' inclusion.

### Perspectives on Parenting

Parents' perspectives on parenting children who are DHH have been explored in several ways across the globe. Studies have examined parents' attitudes toward their children, their attitudes toward disability, their perceived benefits of involvement

with the child, and their perceptions of health-related quality of life (HRQoL). Studies have also explored fathers' connections with their children, their knowledge of hearing-related topics, the experiences that have shaped their understanding of what it means to be a father of a child who is DHH, and the relationship between having a child who is DHH and marital satisfaction.

In the earliest study found in this systematic review, by Neuhaus (1969), it was reported that parental attitudes toward children, both by fathers and mothers, had a direct association with the DHH child's emotional adjustment. The study did not find a significant relationship between fathers' or mothers' attitudes toward disability and the child's emotional adjustment. However, the author acknowledged that by the time children were old enough to be enrolled in the study (age 3), parental attitudes toward both the child and toward disability are largely set. Although the rationale for the following statement did not seem to be substantiated by the evidence provided in the study, the article did state that, it was the "... author's opinion that the maternal attitude, either positive or negative, out-weighs the



paternal attitude in its effect upon the deaf child's emotional adjustment." (p.724).

McNeil and Chabassol (1981) hypothesized that fathers are less involved with their deaf children. Their exploration of mothers' and fathers' level and perception of involvement, however, found that both parents believed fathers involvement to be important and that both reported fathers to be as involved as mothers. Fathers were described as gaining most of the information that they knew about their child's hearing status from the mothers, who were more likely to make and bring the child to audiologic and medical appointments. The majority of parents, 80%, reported that the involvement of fathers is different from the involvement of mothers. Whereas questions in this study framed "involvement" in terms of engagement with clinical care, on interview both fathers and mothers suggested that fathers are active participants in their child's care in different ways. Fathers reported becoming closer to their DHH child than with their other children who had a typical hearing, attributing this to the additional time spent with the child and the unique traits of DHH child such as the child's willingness to "try anything" and "never give up" (p.124).

A study of parental attitudes toward deafness and DHH children's communication skills was conducted in the United States (Hadadian & Rose, 1991). Investigators reported that mothers and fathers of young children (18–60 months of age) held "relatively similar attitudes toward deafness." (p.276). However, a relationship between fathers' attitudes and their children's language scores was noted. The more negative a father's attitude toward deafness, as assessed by responses to the Attitudes Toward Deafness Scale, the lower the language comprehension scores of the children. Because expressive language scores for the children were well below average, with just one exception, the authors speculated that it was not possible to accurately determine an impact of fathers' attitudes toward their child's hearing status on expressive language abilities.

In Malaysia, a study examining the knowledge of parents included Malay, Chinese, and Indian participants (Mukari, Vandort, Ahmad, Saim, & Mohamed, 1999). Most parents (68.6%)—both mothers and fathers—indicated that they were unaware and/or unsuspecting that their child had hearing loss until the child reached an age at which they believed the child should have begun to speak. Parents were described as having a lack of adequate information about hearing loss and hearing aid (HA) management [e.g., among children who wore HAs, half (50.2%) of the HAs had never been serviced, at least in part related to parents' lack of awareness of how to care for them]. All children in the study attended schools that utilize a form of signs in combination with a speech known as Bahasa Malaysia Kod Tangan (BMKT). However, nearly half of the parents (41.3% of mothers; 48.5% of fathers) reportedly did not know BMKT. Financial barriers to obtaining HAs in Malaysia influenced whether a child owned HAs; often the socioeconomic level of the family was determined by the extent of the father's education.

A study conducted in Canada explored parents' mention of critical incidents that have shaped their experiences of parenting a DHH child (Zaidman-Zait, 2007). Interviewing mothers and fathers separately and analyzing their responses led the researcher to 20 themes which could be broadly grouped into five categories: contextual sources of support, parents' personal and psychological resources, child's characteristics, and perceived positive outcomes of existing coping resources. In the presentation of the themes and in the discussion section, the researcher did not distinguish between the responses provided by the mothers and fathers. Zaidman-Zait did, however,

differentiate the percentage of the fathers and mothers who mentioned critical incidents within each category. A review of the table within that paper reveals that mothers were more inclined to mention intervention services, guidance from professionals, and having a supportive childcare setting as being critical to parenting a DHH child. Fathers were more inclined than mothers to describe taking action, utilizing personal resources, and having a supportive workplace as being critical. Additionally, 50% of fathers compared to 20% of mothers mentioned the importance of the marital partnership.

In India, researchers examined the attitudes of parents of DHH children using a questionnaire developed in English for the purpose of the study and then translated into "the local language" (Kumar & Rao, 2008). Fathers exhibited more favorable attitudes toward their DHH children than did mothers. Both mothers and fathers showed more positive attitudes toward their DHH sons than their DHH daughters. The authors speculated that the difference in favorability scores between fathers and mothers may be attributable to the extensive care mothers provide in the Indian cultural context, which could contribute to maternal burn-out or fatigue. The investigators further posit that Indian mothers' level of "emotional dependence" on the child is greater than that of fathers, which may result in mothers' greater disappointment with having a "disabled child." Parents of both genders with higher levels of education also showed a higher rate of acceptability of their DHH child.

In Turkey, investigators explored the understanding of "family roles" among fathers of DHH children (Sahli, 2011). Fathers of DHH children were self-reported to be more protective of their children than fathers of children with typical hearing. Fathers of DHH children also acknowledged being less democratic and disciplined with their children than fathers of children with typical hearing. Overall, the researchers suggested that fathers of DHH had adequate support for themselves and their families. They stated that the fathers who would do best would have "enough information" would be best equipped to "feel like themselves" (p.684).

In order to better understand the impact of parenting children who are DHH and children with speech impairments, researchers in Croatia administered a health status questionnaire (Aras et al., 2014). Their assessment of HRQoL differentially assessed mothers' and fathers' responses across five scales: physical functioning, role-physical, bodily pain, social functioning, and role-emotional. Overall, mothers of DHH children and mothers of children with speech impairments in the Croatia study rated HRQoL lower than did fathers of both groups of children across nearly all health dimensions including physical, emotional, and social domains. While mothers in the control group also scored lower than the fathers in the same group, the extent of the differences between mothers and fathers of children with hearing impairment was described as "substantial." Fathers of children with speech impairments scored lower on HRQoL than fathers of DHH children. The researchers surmise that by preschool age, many of the challenging decisions parents make regarding their child with hearing loss (e.g., regarding use of HAs or cochlear implants, CIs) have already occurred, while the challenges of children with speech impairments may be becoming more readily apparent in the preschool years.

Fathers' and mothers' knowledge and experiences related to hearing loss and HA use were compared in a study that explored parent-reported challenges related to HA use in the U.S. context (Munoz et al., 2015). Munoz et al. found that most mothers receive information about their child's hearing loss from

audiologists and prefer having information repeated often. Fathers are more likely to learn from mothers and are less inclined to desire a repetition of information. Mothers and fathers reported similar levels of comfort with HA management, although fathers perceived that their child was receiving greater benefit from the HAs, while mothers expressed greater challenges with the HAs than did fathers. The researchers highlighted recommendations for how professionals—audiologists in this case—can use the information about fathers' and mothers' experiences to better meet their different needs and, by extension, those of their children.

Researchers in Greece compared fathers of children who were DHH, fathers of children who had an intellectual disability, fathers of children diagnosed with an autism spectrum disorder, and fathers of children without disabilities (Mavrogianni & Lampropoulou, 2018). Across the four groups of fathers, investigators measured the level of involvement with childcare, beliefs regarding the parenting role, parental stress, marital satisfaction, and social support. Collectively, fathers of children who were DHH or had a disability described similar experiences, which differed from fathers of children without disabilities. Fathers of DHH children and fathers of children with disabilities reported more stress, as well as greater support from their environment than fathers of typically developing children. Holding positive beliefs about their role as parents was associated with increased involvement. Fathers with higher levels of marital satisfaction and more positive beliefs about their roles as parents were also more involved in the care of their children. The authors suggest that helping fathers to feel more empowered in their roles as parents to children who are DHH may facilitate positive effects in their interactions with their children and their spouses.

## Parental Stress and Coping

Compared to the number of studies that have explored other themes that emerged in this review, parental stress of parents of DHH children has been examined relatively frequently in the literature in several countries across the globe. Researchers have assessed parental stress and explored relationships between stress and: social supports; parental coping and coping resources; acceptance of and reactions toward the child and his/her hearing status; and child social-emotional and attachment outcomes.

Brand and Coetzer (1994) explored parents' emotional experiences (e.g., shock, worry, anger) at the time hearing loss was identified and found no differences between fathers' and mothers' emotional reactions. No differences in the amount of general stress were found between parents. Mothers perceived the amount of free time they had for themselves and the extent of the emotional support they received from their spouse as inadequate; fathers did not endorse these same views.

Fathers of DHH infants reported parenting stress levels similar to U.S. population norms, yet marginally higher than a control group of fathers of infants with typical hearing. No differences in parenting stress or general stress between fathers and mothers of DHH infants were found (Meadow-Orlans, 1994). Meadow-Orlans also explored the availability of social support from others, which was conceptualized as a buffer to stress. Fathers and mothers of DHH infants and parents of infants with typical hearing experienced the same amount of social support from their networks. The association between parenting stress and social support was "marginally significant" for fathers of DHH infants and significant for mothers.

In an additional study by Meadow-Orlans (1995), the subscale scores of the parental stress questionnaire used in the 1994 sample were examined in more detail. These findings showed that fathers of DHH infants rated themselves "less accepting" and "more demanding" compared to fathers of infants with typical hearing. Mothers of DHH infants and fathers of DHH infants both rated their children more distractible/hyperactive than did parents of either gender with typically hearing infants. Comparisons between fathers and mothers of DHH infants revealed that fathers reported being less attached to their child; mothers reported being more depressed than their spouse. These findings were, however, "marginally significant." Mothers also endorsed greater stress related to work, money, role restriction, and relationships with their spouse than did fathers.

In a series of studies from Turkey, Spahn, Richter, Zschocke, Löhle, and Wirsching (2001) and Spahn, Burger, Löschmann, and Richter (2004) examined general stress in fathers and mothers of deaf children with CIs (age between 2–16 years). In their 2001 work, they found that 26% of mothers and 25% of fathers suffered from "high psychic stress" (Spahn et al., 2001). Most of the fathers and mothers expressed a strong interest in receiving support, both in terms of further information about their child's hearing status and functioning, and through parent groups.

To explore psychic stress among parents of children who use HAs and children who use CIs, Spahn, Richter, Burger, Löhle, and Wirsching (2003) retrospectively asked parents about their feelings of well-being during the various phases of auditory (re)habilitation. In comparing the experiences of parents of children with HAs versus the experience of parents of children with CIs, more overall "psychic distress" was found in parents of children with CIs than in parents of children using HAs. The cochlear implantation process (including the operation and the fitting/mapping of the device) were described as more stressful for parents than the period of rehabilitation for HAs. The fathers of the children with CIs reported having to take more unpaid time away from work than the fathers of the children with HAs. The authors surmised that the process of cochlear implantation might be more demanding for fathers, given the need for multiple audiologic and medical appointments. Both fathers and mothers endorsed feeling highly distressed at the start of the (re)habilitation process, yet these feelings decreased over the course of their child's treatment, eventually stabilizing in the "medium range" of distress.

Spahn et al. (2004) asked parents of deaf children with CIs about their perceived general stress as well as their quality of life. Again, elevated "psychic stress levels" were reported by 23.1% of fathers and 20% of mothers (Spahn et al., 2004). Both mothers and fathers of the children with CIs perceived themselves to have a "moderately reduced" quality of life.

A large German study involving 213 fathers and 213 mothers of DHH children (age 4–13 years) examined the associations between parental stress and coping resources (Hintermair, 2006). Parental stress was found to be influenced by parents' resources; higher levels of personal and social resources were related to lower stress levels. Although these associations are found in both fathers and mothers, the strength of the associations was slightly different. Fathers who reported lower stress levels had greater social support from family, friends, and professionals. Mothers with lower stress levels reported an elevated sense of coherence for coping with hearing loss. For both parent groups, levels of parental stress were related to children's social-emotional functioning. Both fathers and mothers who experienced lower stress had children with more positive social-emotional development.

Using the same large database of responses from 213 fathers and 213 mothers of DHH children in Germany, *Hintermair (2006)* examined fathers' and mothers' responses on the Strengths and Difficulties Questionnaire (SDQ). The purpose of this study was to examine whether the German version of the SDQ could be used as an effective screening tool for the challenges and strengths shown by DHH children and to provide information about the prevalence of socioemotional programs in German-speaking children who are DHH. This study examined the differential reports of both parents. Minor differences in the parents' ratings were noted and described in the tables (e.g., mothers' rating of the "total problem score" for children with additional disabilities was higher than fathers' rating). Overall, however, the study showed no significant differences in fathers' and mothers' reporting of socioemotional problems in German DHH children. Importantly for this study, both fathers and mothers identified significant socioemotional challenges in DHH children, prompting the author to argue for increased socioemotional support for this population.

The emotional responses to having a child with a hearing loss sometimes differs between fathers and mothers. A study in the United Kingdom asked parents retrospectively about their emotions related to having a child identified with hearing loss and receiving a CI (*Anagnostou, Graham, & Crocker, 2007*). Fathers of children with CIs reportedly used "denial" more frequently as a defense mechanism than mothers. From the time of identification of the child's hearing status through 2 years postimplantation, both fathers and mothers identified "grief" as the strongest emotion that they experienced.

In a study examining the perspectives of parents in Malaysia, fathers and mothers were found to utilize different coping strategies in response to having a DHH child (*Daud, Noor, Yusoff, Rahman, & Zakaria, 2013*). Parents of both genders highly endorsed religion, active coping, and acceptance as necessary means of dealing with their children's hearing loss. However, mothers reported seeking more emotional support and obtaining greater instrumental support than did fathers. Mothers were also more likely to turn to religion to aid their coping, whereas fathers were reportedly more inclined to seek problem-focused solutions. *Daud et al.* surmised that, because most mothers in their study were not employed outside of the home, much of the caregiving responsibilities fell to them. Thus, it may be less that mothers were inclined to "seek solutions" in ways different from fathers. The researchers concluded that fathers may exhibit less concern about factors impacting their DHH children and may benefit from encouragement to become more involved with their children.

Other research has also found that CI surgery might be specifically stressful for parents. In a study conducted in Turkey on parental emotions pre- and post-cochlear implantation, mothers were described as more "anxious" and "neurotic" (using psychiatric measures) than fathers (*Gurbuz et al., 2013*). In both fathers and mothers, anxiety decreased after cochlear implantation.

Israeli fathers and mothers of DHH children (3–8 years old) reported moderate levels of parental stress, as well as similar levels of acceptance of their DHH child (*Zaidman-Zait, Most, Tarrasch, Haddad-eid, & Brand, 2016*). In general, across both mothers and fathers, higher reported levels of child acceptance were associated with lower reported levels of parental stress. Social support was described as a potential mechanism to boost parental coping. While fathers and mothers did not differ in the amount of support they perceived, an association between stress and social support was only found to be significant for

mothers. Mothers who perceived more support reported lower stress levels.

### Parent-Child Interaction

Researchers in the United States and Belgium have explored parent-child interaction and parent-child attachment. Across four studies, the researchers explored whether mothers and fathers utilize different communication approaches when interacting with their infants. The United States and Belgian investigators also explored whether attitudes toward a child being DHH has an impact on attachment.

The nature of attachment relationships between deaf toddlers and preschoolers and their hearing parents in the United States were examined by *Hadadian (1995)*. Negative parental attitudes toward deafness, held by both fathers and mothers, were negatively related to their children's scores on measures of security of attachment. No differences were found between child-father and child-mother security of attachment scores. DHH children were equally likely to attach and bond with both caregivers.

A Belgian study revealed greater use of visual-tactile communication strategies by deaf fathers than by hearing fathers, deaf mothers, or hearing mothers of DHH children (*Loots, Devisé, & Sermijn, 2003*). In this study, deaf fathers allowed more wait time to gain the child's visual engagement than deaf mothers and hearing mothers.

Deaf parents-deaf infants were compared with hearing parents-deaf infant dyads (18–24 months) in a study that explored communication modalities and intersubjectivity conducted in Brussels (*Loots, Devisé, & Jacquet, 2005*). This work focused on the different ways that deaf parents interact with their infants using sign language in comparison to hearing parents who communicate using aural/oral methods and hearing parents using total communication to engage with their toddlers. Most of the findings of this study were framed in terms of parent groups rather than differences between fathers and mothers (e.g., deaf parents were found to utilize different and more frequent attention-gaining strategies, which the author suggest allows deaf parents to involve their deaf toddlers in "symbolic intersubjectivity"). No significant differences were found between hearing parents (i.e., fathers + mothers) using total communication and deaf parents employing Flemish Sign Language with respect to the degree of involvement in moments of intersubjectivity; both groups showed more involvement than hearing parents using spoken Dutch. Analyses specific to fathers revealed that fathers using auditory/oral communication were "less easily involved in intersubjectivity" than hearing fathers using total communication or deaf fathers using Flemish Sign Language.

In a study involving ten Belgian parent-child dyads, the extent to which deaf parents and hearing parents use visual communications strategies during interaction with their 2-year-old deaf children was examined (*Wille, Allen, Van Lierde, & Van Herreweghe, 2019*). Deaf fathers used more implicit strategies, such as waiting for a child to look to them for communication, compared to deaf mothers. The deaf fathers in this study tended to have the most successful back-and-forth interactions with their deaf children compared to deaf mothers, hearing mothers, or hearing fathers. *Wille et al.* did not find differences in hearing mothers and hearing fathers with respect to their use of visual-tactile communication or waiting strategies.



## Involvement in EI

Researchers have explored the extent to which fathers are involved with early intervention and explored the relationships between this involvement and a number of other factors, including the fathers' ability to communicate with the child, fathers' perceived benefit of participation, child preschool-readiness, coordination of care and appointments, and acceptance of the child.

In Finland, parents were asked to describe their involvement in a sign language training program. They were asked to rate their own use of sign language, the extent to which their child used sign language, and their perceived benefit from sign language intervention (Takala, Kuusela, & Takala, 2000). Mothers reported higher involvement with the intervention and greater contact with the Finnish Deaf community than did fathers. Fathers had fewer contacts in the Deaf community, endorsed having greater difficulty learning sign language, and reported less satisfaction with the sign language intervention. The researchers found a correlation between the father's communication abilities and the child's self-esteem, that is, as fathers' communication abilities increased, so did the reported self-esteem of their children.

Fathers who were more highly involved in the early intervention had lower needs in supporting the transition of their DHH child through intervention to educational settings in a study conducted in Turkey (Bayguzina, Yucel, & Atas, 2012). Higher levels of family socioeconomic resources and maternal education were also found to help young children with CIs be ready for school. The gender of the child was the remaining factor; overall, boys were perceived as less "preschool ready" than girls.

In their study of parents of DHH children in Israel, researchers found that the coordination of care and intervention appointments to support DHH children often falls to mothers, given the "manager-helper dynamic" frequently found in that cultural context (Zaidman-Zait, Most, Tarrasch, & Haddad, 2018). The authors described the cultural context as having a majority of mothers not employed outside of the home (73%); proposing that, while fathers were inclined to assist with specific tasks related to child-rearing, mothers often serve as the orchestrators of family life and the intervention supports for DHH children. However, in the presence of higher levels of support from family and friends, fathers' involvement increased. Fathers could adjust their work/routines in order to increase their involvement in the DHH child's intervention programming.

Additional studies in Israel have found a positive correlation between fathers' acceptance of their child and their levels of involvement in early intervention (Brand, Zaidman-Zait, & Most, 2018). For mothers, involvement was not associated with acceptance. Perceived social support was associated with increases in fathers' involvement. The researchers hypothesized that perhaps fathers' acceptance of the DHH child may motivate them to be more involved, whereas mothers' perceptions of their roles as caregivers, rather than acceptance of the child per se, may provide greater motivation. As the involvement of fathers increased, the level of involvement reported by mothers decreased. The researchers suggested that as the involvement of either parent increases, the necessary involvement of the other parent decreases.

A German study involving fathers of young DHH children (Hintermair & Sarimski, 2018) found that most fathers (76.1%) never or rarely participated in their child's early intervention programming, while a minority (23.9%) reported often or always participating. No relationship was found between the number

of hours the fathers worked and their involvement in services; some of the most involved fathers also tended to work more hours. However, the scheduling of the EI services during hours when fathers must work, and heavy work demands that left fathers with "little left to give" were said to influence their involvement. Additionally, approximately half of the fathers reported that their partners made and managed the appointments and did not include them.

## Parental Self-Efficacy

The existing literature pertaining to fathers of DHH children has examined the relationship between fathers' parental self-efficacy and their involvement and engagement with their child. Researchers have also explored whether factors such as religiosity and cultural background of the families influence fathers' sense of parental self-efficacy.

Research from Israel suggests that fathers' sense of self-efficacy seems to be tied to the level of their involvement in daily activities with their child; fathers who were more highly involved with their DHH preschool children report higher levels of self-efficacy (Ingber & Most, 2012). Father involvement was positively associated with family cohesion. Fathers' self-reported level of involvement mirrored their wives' reports of their involvement as well. In this cultural context, fathers' work experiences did seem to influence their involvement; fathers with higher occupational status and fathers who worked longer hours tended to be less involved.

One study focused on Israeli-Arab parents of children who are DHH (Zaidman-Zait et al., 2016). These researchers noted that while 20% of the Israeli population is from the Arab sector, 30% of DHH children in that country have families who could be described as Israeli-Arab. For this subset of caregivers, mothers reported higher levels of parental self-efficacy than fathers. Mothers were also more highly involved with their children than fathers. Mothers were less inclined to work outside of the home; the caregiving tasks largely fell to mothers. Fathers reported low levels of involvement, initiation, attendance, communication, and interactions with professionals. For fathers alone, parental self-efficacy was positively associated with involvement. In this study, no associations were found between stress and parental involvement.

In a comparison of Jewish parents in Israel, for both mothers and fathers, parental involvement was positively associated with (a) child acceptance, (b) parental self-efficacy, and (c) perceived social support (Brand et al., 2018). No interaction effects were identified between self-efficacy and levels of religiosity in the family, nor between self-efficacy and the gender of the parent. However, parents with higher levels of religiosity tended to be less involved in the interventions for their DHH child. Among fathers, higher rates of child acceptance and more social support were negatively associated with mothers' involvement. The authors speculated that the more involved a father, the less involved the mother was required to be; involved fathers may contribute to more balanced involvement of both parents.

In an additional study from Israel, a positive relationship was found between parental self-efficacy and involvement; that is, fathers who self-rated their parental self-efficacy as high tended to feel more encouraged to engage in their child's intervention (Zaidman-Zait et al., 2018). Fathers of DHH children who rate themselves as more competent in their parenting role also tend to be rated as more involved by the mothers of their children.



A study of fathers of very young children in Germany found most fathers to be ready to “face the challenge” of raising a DHH child and described them as coping well (Hintermair & Sarimski, 2018). However, 20% of fathers who did not report coping well, indicating that they were struggling to live in a household with a child who was DHH. The impact of the child’s hearing loss was less when fathers felt more competent in educating their DHH child and in their role as a parent. Fathers’ parental self-efficacy was also found to be positively correlated with other aspects of involvement including increased engagement in the care of the child (e.g., daily routines) and the child’s early intervention programming. Marital satisfaction was also reported to be higher among those fathers who had stronger parental self-efficacy.

### Benefits of Fathers’ Inclusion

Four studies were conducted in the United States during the 1980s–1990s that examined the influence of fathers on their DHH children. Collectively, these explored how the presence and inclusion of fathers may contribute to child outcomes.

When fathers have been included in programs intended to support parents of DHH children, they and their children seem to benefit (Crowley, Keane, & Needham, 1982). Participation in a fathers-only support group for fathers of children in the early intervention was associated with fathers’ increased involvement with their child and greater awareness of the responsibilities and joys associated with being involved.

Researchers in the 1980s (McNeil & Chabassol, 1984), proposed that fathers’ roles as “breadwinners” with strong commitments to their jobs meant that fathers could not be involved in the lives of their young DHH children. However, using an “exploratory and descriptive design,” the researchers asked questions of both fathers and mothers regarding their involvement. Fathers indicated a recognition that DHH children need more support from both parents. Fathers reported being more involved with—and closer to—their DHH child than their other children. Both mothers and fathers reported a need for programming that is for both parents, rather than programming aimed at only mothers.

Positive attitudes toward deafness were found to be higher among fathers involved in the early intervention programming for their young children than among fathers not involved in their children’s early intervention programming (Haddadian & Rose, 1991). Positive attitudes toward deafness, in turn, were significantly correlated with better language outcomes in children with severe to profound levels of hearing loss.

DHH children without a father present in their lives were compared to DHH children who had fathers involved in their lives at the time of completion of their early intervention programs. Children whose fathers were present in their lives were found to have higher academic and language outcomes (Calderon & Low, 1998). No differences were found in the two groups of children on non-verbal IQ or social-emotional outcomes. Fathers’ signing skills were not as strong as those of the mothers, per self-report and observational ratings by the researchers. Fathers were described as promoting play interactions that, although not “building language” per se, did seem to have a positive and substantial effect on fostering children’s non-verbal yet essential communication behaviors,

such as turn-taking and looking to the communication partner for information.

### Not Included in Analysis

Some studies that met the inclusivity/exclusivity criteria for the systematic review did not, upon more critical analysis, truly capture fathers’ unique experiences or perceptions. These studies, included in Table 1, are briefly described below. They were not utilized in the analysis of themes, given that they were determined by the authors to be outside the intended scope of this review.

One study explored the experiences of 59 mother-infant dyads and just one father-infant interaction (Crittenden & Bonvillian, 1984). Although this study did include a deaf father, this was just one participant; the comparison groups included neglecting mothers, abusing mothers, mentally retarded [sic] mothers, low-income families, and a “low risk” group. This study was not deemed to provide useful information about fathers of DHH children.

Comparing the reported stress of fathers and mothers of DHH children, Hagborg (1989) focused on school-age children. Although the youngest was age 6, and thus met the inclusion criteria, the mean age of the children whose parents were involved in the study was 15.06 years. Given that this study focused on parents of children attending residential deaf programs, the types of experiences described differed substantially from the focus of the present review, children from 0–6 years of age.

One study explored hearing parents’ appraisals of raising a child who is DHH (Szarkowski & Brice, 2016). Of the 11 respondents in their qualitative study, three were fathers; yet the findings from this research did not differentiate parental responses based on the gender of the parent and thus could not contribute to this analysis.

## Discussion

In the 50 years since the initial published investigation of fathers’ experiences and perceptions in raising a young DHH child, the field has only “scratched the surface” in understanding the influence of fathers, the strengths that fathers bring to the parent-child interactions, and the impact that fathers have on their family. Exploration of the literature reveals a lack of information about the experiences and perceptions of fathers of children who are DHH. Despite a relatively long history of exploring parents/parenting experiences of DHH children in the field of deaf-related research, the research on fathers of DHH children is in its infancy with respect to the understanding in the DHH fields about fathers’ experiences and perceptions. With few exceptions (e.g., Hintermair & Sarimski, 2018; Mavrogianni & Lampropoulou, 2018), studies have not actively sought to explore fathers’ experiences independent of mothers’ experiences. Existing studies have rarely explored unique aspects of being a father to a DHH child and offered recommendations based on findings to suggest altering programming or interventions to support the unique needs of fathers.

Returning again to the report from the American Academy of Pediatrics Committee that explored child and family health (Yogman et al., 2016), it is clear that in many families, fathers’ levels of involvement and time spent with their children has increased in the last generation. It has been established that the

**Table 1** Description of studies including fathers of deaf or hard of hearing young children utilizing the PICOS-guided questions

First author	Year	Country	Participants		Measures/instruments	Main results	Design
			F/M	N <sup>a</sup>			
Anagnostou et al.	2007	UK	F/M	27 F 26 M	Parental emotions following CI questionnaire (NS)	F used defense mechanism of denial more than M	QUAN
Aras et al.	2014	Croatia	F/M	60 F 71 M 182 MTH 167 FTH	HRQOL SF-26 (Croatian version) <sup>1</sup>	F scored better than M on physical, emotional and social aspects of life F scored worse than FTH on social functioning, pain and general health perception	QUAN CS CS
Bayguzina et al.	2012	Turkey	F/M	130 M 129 F	Demographic information form (NS) Scale of Parental Information needs in transition to Kindergarten <sup>2</sup>	F who participated in EI had lower needs than F who did not Younger F had more needs than older F Family SES influenced pre-school readiness	QUAN CS
Brand and Coetzer	1994	South Africa	F/M	30 C	Biological questionnaire (NS) Questionnaire on Resources and Stress QRS-F—short form of the (QRS) <sup>3</sup> Individual interview (NS)	No differences F/M general stress and emotional response on diagnosis M more stress concerning parent and family problems than F M perceived amount of free time as inadequate M receive less emotional support than F	QUAN CS
Brand et al.	2018	Israël	F/M	70 C	Parental Involvement Questionnaire <sup>4</sup> Child Acceptance Questionnaire <sup>5</sup> Early Intervention Parental Self Efficacy Scale (EIPSES) <sup>6</sup> Support System Questionnaire <sup>7</sup> Family report of Jewish religiosity (NS)	F reported lower involvement than M F involvement related to child acceptance, self-efficacy, support F acceptance and support negatively related to M involvement The higher the level of self-efficacy and the higher the support, the more involved the parent	QUAN CS
Calderon and Low	1998	United States	F present-t/not present	17 F present 5 not present	Child demographics (NS) SKI*HI Language Development Scale <sup>8</sup> Percentage of visits each parent was present Perceived parent involvement (based on parent trainers' narrative notes) Family stress (# major life events documented in parent trainer narrative notes) Preschool Language Scale 3 (PLS-3) <sup>9</sup> Test of Early Reading Ability-Deaf/Hard of Hearing (TERA-DHH) <sup>10</sup> Geometric Design of the Wechsler Preschool and Primary Scale of Intelligence-Revised (WPPSI-R) <sup>11</sup> Language Proficiency Profile (LPP) <sup>12</sup> Social-Emotional Assessment Inventory (SEAI)-Preschool version <sup>13</sup> Child Behavior Checklist (CBCL); Child Behavior Profile <sup>14</sup>	F present in family—better academic & language outcomes F present in family—no impact on social-emotional outcomes	QUAN CS

(Continued)

Table 1 Continued

First author	Year	Country	Participants		Child hearing status	Measures/instruments	Main results	Design
			F/M	N <sup>a</sup>				
Crittenden and Bonvillian	1984	United States	M/F	59 M 1 F	Severe HL	Three-minute videotape, assessing for maternal sensitivity displayed during parent-child play interaction. Scored using standardized coding. <sup>15</sup>	No analysis on F	QUAN CS
Crowley et al.	1982	United States	F	8 F	Severe-profound HL	No formal measures used. Paper describes reported benefits of involvement in parent training	F more involved with deaf child F reported increased awareness of the responsibilities & joys involvement brings	QUAL
Daud et al.	2013	Malaysia	F/M	36 F 36 M	Moderate-profound HL	Brief COPE Scale questionnaire—Malay version <sup>16</sup> Sociodemographic questionnaire (NS)	F sought less emotional and instrumental support than M F used less problem-focused coping strategies than M	QUAN CS
Gurbuz et al.	2013	Turkey	F/M	25 F 25 M	CI users	Beck Anxiety Inventory (BAI) <sup>17</sup> -Turkish version <sup>18</sup> Assessment of Coping Attenuations (COPE) Inventory <sup>19</sup>	F less anxious and neurotic than M Parental anxiety decreased after CI	QUAN CS
Hadadian & Rose	1991	United States	F/M	30 C	Severe-profound HL	Problem-Solving Inventory <sup>20</sup> Penn State Worry Questionnaire (PSWQ) <sup>21</sup> Revised Eysenck Personality Questionnaire-Abbreviated (EPQR-A) <sup>22</sup> Attitude toward Deafness Scale <sup>23</sup> Minnesota Child Development Inventory (MCDI) <sup>24</sup> Parent interview form (NS)	F attitude toward deafness associated with child language comprehension measures No differences F/M in attitude toward deafness	QUAN CS
Hadadian	1995	United States	F/M	30 C	Severe-profound HL	Attachment Q-Set <sup>25</sup> Attitude to Deafness Scale <sup>23</sup> Parental Interview form (NS)	No differences F/M in security of attachment Parental attitude to deafness was negatively related to security of attachment	QUAN CS
Hagborg	1989	United States	F/M	42 C	Severe-profound HL (included 6 yr)	Parent Sign Language Rating (self-report; NS) Student rating of Parent Sign Language (child report; NS) Questionnaire on Resources and Stress – Short Form (QRS-SF) <sup>3</sup> Problem Behavior Checklist (PBD) <sup>26</sup> Oral Communication Skills: Intelligible Speech and Lipreading <sup>27</sup> How I Feel Toward Others (HIFTO) <sup>28</sup> Stanford Achievement Test—Hearing Impaired <sup>29</sup> Sociometric status (self-report; NS)	No differences F/M in perceived stress and resources F perceived stress negatively related to child's lipreading skills	QUAN CS

(Continued)

Table 1 Continued

First author	Year	Country	Participants		Child hearing status	Measures/instruments	Main results	Design
			F/M	N <sup>a</sup>				
Hintermair	2006	Germany	F/M	213 F 213 M	Mild-profound HL	Parenting stress index <sup>30</sup> Strengths and Difficulties Questionnaire—German Parent Version (SDQ-D) <sup>31</sup> Sociodemographic questionnaire (NS) Sense of Coherence questionnaire—German short version (SOC-K-3) <sup>32</sup> Parents' subjective view of parenting competence (single question; NS) Social Support Questionnaire (F-SozU-K-14) <sup>33</sup> Child's Communication Competence (self-constructed scale; NS)	No differences F/M in perceived stress and personal resources or reported social-emotional problems child Parental stress related to social-emotional problems, child communication, competence, parental resources and sense of coherence Difference F/M in associations sense of coherence and specific support	QUAN CS
Hintermair	2007	Germany	F/M	213 F 213 M	Mild- profound HL	Questionnaire—German Parent Version (SDQ-D) <sup>31</sup>	No differences F/M in reporting social-emotional problems child	QUAN CS
Hintermair and Sanimski	2018	Germany	F	92 F	Mild- profound HL	Sociodemographic questionnaire (NS) Fathers of Children with Developmental Challenges <sup>34</sup> Daily Caregiving Scale <sup>35</sup> Child-Related Tasks Scale <sup>35</sup> Informal scale—quality of fathers' experiences with early intervention services <sup>36</sup> Generalized Self-Efficacy Scale <sup>37</sup> Demographic questionnaire (NS) Inventory of Father Involvement <sup>38</sup> (Hebrew Adaptation) <sup>39</sup> Parenting Self-Efficacy Questionnaire <sup>40</sup> (in Soref et al.) <sup>41</sup> Family Adaptability & Cohesion Evaluation (FACES-III) <sup>42</sup> – Hebrew adaptation <sup>43</sup> Questionnaire developed and distributed (referred to as the Parental Attitude Scale; NS)	76% of F never or rarely participated in EI 40% of F noted that EI is mainly negotiated between EI and M Positive associations between self-efficacy, involvement in EI and perceived support from EI	QUAN CS
Ingber and Most	2012	Israel	F/M	38 F 36 FTH 38 M 36 MTH	Moderate- profound HL		No differences F/M and F/FTH in self-efficacy and involvement F Number of hours working negatively related to F involvement Higher involvement of F contributed to F feeling stronger, more self-confident and resilient F exhibit more favorable attitudes toward DHH child than M F exhibit more favorable attitudes towards their DHH sons than daughters	QUAN CS
Kumar and Rao	2008	India	F/M	30 F 30 M	NA		Deaf F used more communication strategies (tapping, use of space, and waiting until child looks) than hearing F Deaf F waited longer to gain DHH child attention than deaf M and hearing F or M before starting interaction	QUAN CS
Loots et al.	2003	Belgium	F/M	16 C 1 M (included 5 deaf couples)	Moderate- profound HL	Videotaped parent-child interactions for 24 min of free play Computer Acquisition of Multiple Ethnological Records and Analysis (CAMERA) coding system <sup>44</sup>		QUAN CS

(Continued)



Table 1 Continued

First author	Year	Country	Participants		Child hearing status	Measures/instruments	Main results	Design
			F/M	N <sup>a</sup>				
Loots et al.	2005	Belgium	F/M	15 C 1 M (included four deaf couples)	Moderate-profound HL	Videotaped parent-child interactions for 24 min of free play Computer Acquisition of Multiple Ethnological Records and Analysis (CAMERA) coding system <sup>44</sup>	Hearing F communicating in an auditory/oral way were less easily involved in intersubjectivity than hearing F communicating in signed Dutch or deaf F communicating in Flemish sign language No differences F/FTH in involvement or beliefs concerning parental role and marital satisfaction F reported more stress than FTH F reported less stress than fathers of children with autism and intellectual disability F reported more support from their environment than FTH No differences F and fathers of children with autism or intellectual disability in support F positive beliefs about their role was positively associated with their involvement	QUAN CS
Mavrogianmi and Lampropoulou	2018	Greece	F	25 F 94 FTH 30 fathers of children with autism 23 fathers of children with intellectual disability	Deaf (mean)	Parental Involvement on Child Care Index (PICCI) <sup>45</sup> The Clarke Modification of the Holroyd Questionnaire on Resources and Stress (Clarke QRS) <sup>46</sup> Family Support Scale (FSS) <sup>47</sup> Beliefs Concerning the Parental Role (BCPR) <sup>48</sup> Kansas Marital Satisfaction Scale (KMS) <sup>49</sup>	No differences F/FTH in involvement or beliefs concerning parental role and marital satisfaction F reported more stress than FTH F reported less stress than fathers of children with autism and intellectual disability F reported more support from their environment than FTH No differences F and fathers of children with autism or intellectual disability in support F positive beliefs about their role was positively associated with their involvement	QUAN CS
McNeil and Chabassol	1984	Canada	F/M	20 C	NA	Interviews with M and F (NS) 10-item questionnaire (NS)	Neither M nor F rated mother's role as more important F involved in different ways than M (per M and F report)	MIX
Meadow-Orlans	1994	United States	F/M	17 F 20 M 17 FTH 20 MTH	Mild-Profound HL	Parenting Stress Index <sup>30</sup> Stress of Life Events <sup>50</sup> The Family Support Scale <sup>7</sup>	F/M no difference in social support & life stress F marginally higher stress scores than FTH. Stress in F marginally significant related to support	QUAN CS
Meadow-Orlans	1995	United States	F/M	16 F 20 M 20 MTH 17 FTH	range	Parenting Stress Index <sup>30</sup> Scale to Measure the Stress of Life Events (SLE) <sup>50</sup> Interviews (F not included, M only)	F marginally higher stress scores than FTH F significantly less "Acceptable" and more "Demanding" than FTH F less stress concerning life events than M F less stress related to "Restriction of Role" and to "Relations with Spouse" than M F marginally less attached to their child than M	QUAN CS

(Continued)

Table 1 Continued

First author	Year	Country	Participants		Child hearing status	Measures/instruments	Main results	Design
			F/M	N <sup>a</sup>				
Mukari et al.	1999	Malaysia	F/M	787 F/M NA	4–15 yr Mild-profound HL	Questionnaire about awareness and knowledge about special needs of parents' children, designed for this study (NS) Family Demographic form (NS) Parent Hearing Aid Management Inventory (PHAMI) (designed for this study) Acceptance and Action Questionnaire (AAQ-II) <sup>51</sup> Patient Health Questionnaire (PHQ-9) <sup>52</sup>	No analyses specific on fathers	QUAN
Munoz et al.	2015	United States	F/M	20 F 35 M	0–3 yr 22 mo. (mean)	HA users	M more likely to learn about HA from audiologists (81%); F more likely to learn from M—just 43% reported learning from audiologist	QUAN CS
Neuhaus	1969	United States	F/M	84	3–19 yr Deaf	Parent Attitude Survey <sup>53</sup> Attitude Toward Disabled Persons Scale (ATDP) <sup>54</sup> Haggerty-Olson-Wickman Behavior Rating Schedules <sup>55</sup>	F of deaf children between 3–12 years accepted the disability more than F of 13–19 years old F/M showed no differences in expressed attitudes towards their children	QUAN CS
Sahli	2011	Turkey	F	20 F 20 FTH	36–112 mo 76 mo (mean)	CI users	F had more protective approach to their child than FTH F were less democratic and disciplined with their children than FTH F who had "enough information and support" could feel more like themselves	QUAN CS
Spahn et al.	2004	Germany	F/M	42 F 52 M	8.4 yr (mean)	Symptom Checklist (SCL 90R) <sup>57</sup> The Everyday Life Questionnaire (EDLQ) <sup>58</sup> Scales of early communication skills for hearing impaired children <sup>59</sup>	23.1% of F and 20% of M had elevated stress levels F/M showed no differences in perceived quality of life	QUAN CS
Spahn et al.	2001	Germany	F/M	46 F 57 M	2–16 yr 7 yr (mean)	Sociodemographic data questionnaire (NS) Symptom checklist (SCL90-R) <sup>60</sup> – German version <sup>57</sup> Questionnaire on psychosocial support <sup>61</sup>	F/M showed no differences in motivation for treatment/psychosocial support; 60% F and 59% M motivated F/M reported no differences in stress levels	QUAN CS

(Continued)

Table 1 Continued

First author	Year	Country	Participants		Measures/instruments	Main results	Design
			F/M	N <sup>a</sup>			
Spahn et al.	2003	Germany	F/M	119 F 138 M 73 F HA 81 M HA 46 F CI 57 M CI	Sociodemographic questionnaire (NS) Self-assessment of parental emotional state during the rehabilitation of the hearing-impaired child <sup>62</sup> Questionnaire on initial information about HA/CI <sup>63</sup> Questionnaire on treatment expectations <sup>64</sup> Family Climate Scale <sup>65</sup>	Comparisons between parents of HA and CI users were made Family climate: F/M of CI children showed lower cohesion, less openness and more control than F/M of HA children. F of children with CI take more unpaid vacation than F of children with HA Treatment expectations in the medium range for both groups of parents No separate analyses on F/M	QUAN CS
				2-16 yr 7 yr (mean)			
Szarkowski and Brice	2016	United States	F/M	3 F 8 M	Family demographic questionnaire (NS) Interview		QUAN
Takala et al.	2000	Finland	F/M	81 families	Questionnaire to assess benefit from participation in the program (NS)	F had greater difficulty learning to sign than M F had fewer and less extensive contacts in the deaf community than M M reported greater satisfaction with the sign language intervention F and M reported the child was the best signer in the family, they struggled to "keep up" F used more explicit strategies than M F used more waving and displacing objects in their interactions than M Deaf F (n=2) used more implicit strategies than Deaf M (n=2) Deaf parents used more visual communication and tactile strategies than hearing parents	QUAN CS
Wille et al.	2019	Belgium	F/M	5 F 5 M	Naturalistic, in-home observations of parent-child communication strategies Assessed based on "strategies of attention" <sup>66</sup>		QUAN CS

(Continued)

Table 1 Continued

First author	Year	Country	Participants		Child hearing status	Measures/instruments		Main results	Design
			F/M	N <sup>a</sup>		Age			
Zaidman-Zait	2007	Canada	F/M	13 F 15 M	CI users	Family Demographics questionnaire (NS) Retrospective self-report parent experience questionnaire (NS) Critical Incidence Interview <sup>67</sup>	Table provides information about % of M and F who endorsed particular critical themes M – Greater % endorsed: intervention services, professionals' guidance, supportive childcare settings F—Greater % endorsed: taking action, personal resources, supportive workplace, marital partnership Most results & the discussion combine parents into one group F lower self-efficacy than M F/M report no differences in stress, support and acceptance F/M higher stress was related to lower self-efficacy and acceptance	MIX	
Zaidman-Zait et al.	2016	Israël	F/M	30 C	Mild-profound HL 5.7 yr (mean)	Impact of Hearing Loss on the Family (family stress scale) <sup>68</sup> Parental Acceptance Questionnaire <sup>5</sup> Early Intervention Parental Self-Efficacy Scale (EIPSES) <sup>6</sup> Scale of Parental Involvement and Self-Efficacy <sup>69</sup> Support System Questionnaire <sup>7</sup>		QUAN CS	
Zaidman-Zait et al.	2018	Israël	F/M	30 C	Mild-profound HL 5.7 (mean)	Parental Involvement Questionnaire <sup>70</sup> Impact of Hearing Loss on the Family <sup>68</sup> Early Intervention Parental Self-Efficacy Scale (EIPSES) <sup>6</sup> Family Support System Questionnaire <sup>7</sup>	F lower involvement, interest, attendance, communication and interaction with professionals than M F self-efficacy related to involvement Parenting stress related to involvement	QUAN CS	

<sup>a</sup>N = only the number of parent of children with HL are given.

C = Couples; CI = Cochlear implant; CS = Cross-Sectional; DHH = Deaf or hard of hearing; F = Fathers of DHH children; FTH = Fathers of children with typical hearing; HA = Hearing aid; HL = Hearing loss; M = Mothers of DHH children; MIX = Mixed; MTH = Mothers of typically hearing children; Mo = Months; NA = Not applicable or information not provided; NS = Non-standardized; P = Parents; TH = Typical hearing; QUAL = Qualitative; QUAN = Quantitative; Yr = Year. Please see all footnotes for this table in [Notes](#) section.



involvement of fathers influences many important outcomes for children, including their physical and mental health, as well as their cognition and achievement (Allport et al., 2018). Yet, collectively, the numerous potential impacts of fathers on their DHH children are not yet well understood. Across the studies examined in the present systematic review, diverse research methodologies were employed, divergent theoretical frameworks for analysis were used, dissimilar populations were examined, different levels of rigor were implemented, and disparate constructs were measured. On the basis of this review, it is not possible to definitively state the influence(s) that have fathers have on their DHH children.

Few studies directly examined the impact of fathers on DHH children's outcomes. The presence of a father in the lives of DHH children has demonstrated a positive impact on the children's academic and language outcomes (Calderon & Low, 1998). Parents experiencing lower levels of stress—both mothers and fathers—have been described as having DHH children with more positive social-emotional development (Hintermair, 2006). It might be expected that fathers' involvement in early intervention would have beneficial effects on children's outcomes. However, it is not possible to declare this with certainty, as none of the studies reviewed examined this relationship. Rather, the influence on the fathers themselves as a result of their involvement has been examined; fathers who were more involved in early intervention, for example, showed higher levels of self-efficacy and perceived more social support from their networks than did less involved fathers (Ingber & Most, 2012). Involved fathers are described as better understanding their children and report finding joy in their involvement with their children (Crowley et al., 1982).

Drawing from the general literature on fathers, it is possible to identify the influence of fathers on child outcomes. For example, a meta-analysis (including 21 studies, spanning from 1998–2008) found associations between direct father involvement and children's social and cognitive early learning (McWayne, Downer, Campos, & Harris, 2013). Another meta-analysis found that fathers' engagement with their children has been linked to positive social, behavioral, and psychological outcomes (Sarkadi, Kristiansson, Oberklaid, & Bremberg, 2008). We suspect that involvement and engagement of fathers of DHH children will, likewise, have a positive influence on children's development (and, recognizing the bidirectional nature of relationships, it follows that the fathers are likely influenced by their children as well). Given the unique attributes as well as needs of children who are DHH, and the diversity of what it can mean to “be DHH,” a better understanding of the role of fathers in the lives of their children is needed.

The PICOS questions that guided the authors' review process were posted in the Introduction section. Based on the information gained through the review, we were able to answer the PICOS questions; responses have been provided below and in Table 1.

1. Participants—How and to what extent have fathers been included in studies of young children who are DHH?
2. Over a 50-year span, only 37 studies met the inclusivity criteria of this study.
3. Interventions/measures/instruments—What was being assessed, or what were the foci of the studies involving fathers (or fathers and mothers) of children who were DHH between birth-to-6 years of age?
4. The research involving fathers spanned six broad categories: (a) perspectives on parenting, (b) parental stress and coping,

(c) parent-child interaction, (d) involvement in early intervention, (e) parental self-efficacy, and (f) benefits of fathers' inclusion.

5. Comparisons—if fathers and mothers were both included in a study, were the results of each reported separately? Did the researchers explicitly differentiate the contributions of fathers and mothers in the study and comment on the similarities and/or differences in their findings? If fathers of DHH children were compared with fathers of children who had a typical hearing or with fathers of children with disabilities, what was unique to the experience of being a father to a child who is DHH?

Table 1 details whether fathers were the focus of the study, or whether fathers and mothers were compared and their results reported separately. Some studies did include both fathers and mothers as participants, yet did not analyze their responses separately; these are included in the table because they met inclusivity criteria, yet they could not be included in the analysis because insufficient information was available to ascertain the role or impact of fathers per se. Some studies did compare fathers of DHH children with fathers of children with typical hearing or children with disabilities. The significant findings from those studies are also captured in Table 1.

1. Outcomes/main findings—Were the outcomes described in terms of the fathers' experiences or perceptions or on the perceived influence of the fathers on their children? Descriptive studies that mentioned fathers, but not their experiences or perceptions, were excluded (e.g., papers that documented paternal genetic contributions to a hearing loss).

Table 1 captures the main findings for each study reviewed. The six categories described above provide a conceptual framework for understanding the areas of study that have examined fathers' experiences and perception of raising a child who is DHH.

1. Study design—Did the study incorporate qualitative, quantitative, or mixed methods research approaches? All of these were included for this systematic review; however, single case studies were not.

The majority of the studies utilized quantitative research designs. Information regarding the research design for each study has been included in Table 1.

## Limitations

The authors have sought to demonstrate rigor and transparency with this systematic review. Yet, it is possible that some pertinent articles may have been omitted. As this review did not include unpublished materials nor information in the grey literature regarding the experiences or perceptions of fathers of young children who are DHH, some relevant information may have been missed.

The quality of the research reviewed for this article was variable. In some papers, the information about research methods and the data obtained were poorly described. The authors have opted to maintain researchers' descriptions of findings, even when these do not align with more standardized reporting mechanisms; for example, some findings are reported as “marginally significant” or one parent is described as having “more” of a particular characteristic than the other parent, although information regarding statistical significance or

effect sizes are not provided. This systematic review captures researchers' self-proclaimed results; these are neither supported nor denied by the authors of this review, they are simply summarized.

The scope of the present study is focused on fathers of children who are DHH, birth to 6 years of age, as this time frame was of greatest interest to the investigators. However, some studies that included 6 years old also included older children; thus, the findings are inclusive of fathers of some DHH children who are older than the intended scope. This review is limited in that it does not intentionally explore the perspectives or experiences of fathers of DHH children over the age of 6 years.

### Implications for Further Research

Fathers' experiences and perceptions are worthy of investigation. In the general literature, there is a growing body of evidence regarding the importance of caregivers, the significant impact parents have on children's development, the potentially unique contributions of fathers with their children and within families, the importance of parent engagement, and the lasting impacts of parent-infant attachment/parent-child bonding in the early years of life. The literature has not yet sufficiently explored these topics in the context of fathers of children who are DHH. Thus, the authors propose the following seven suggestions for future research.

1. Research involving fathers will benefit from including a definition of who is included in the sample. Existing research involving fathers of DHH children rarely provides this specific information. However, depending on the type of study, it may be relevant whether the father is biological, resides in the home with the child, how long the father figure has been in the child's life, or whether the father is actively coparenting the child. Clearly identifying whether fathers themselves are deaf or hearing is also encouraged; whether a father is deaf or hearing (and related other phenomenon, such as access to deaf role models, involvement in supportive communities) can influence the constructs being studied. Clarifying the roles and contributions of the fathers participating in research will provide valuable information to this growing field of inquiry.
2. Investigators are encouraged and challenged to actively recruit fathers. Studies of "parents of DHH children" need to be intentional and purposeful in capturing the perspectives of all types of parents. Although it may be argued that it is easier to garner mothers' participation, the authors challenge investigators to consider whether and to what extent they have been intentional about recruiting fathers for participation as well.
3. Researchers are encouraged to differentially analyze the responses of mothers and fathers when data are available for both. Although parents may share similar experiences and perspectives, this is an assumption that should be tested. While it is understood that studies involving parents of DHH children are often smaller in scale and thus may not have sufficient power to capture meaningful differences, by actively recruiting fathers and intentionally designing studies that allow for comparisons, the field of deaf-related research can progress in a meaningful way. The need for comparison of parents is not in order to pit them against each other or to compare "who is doing what better than the other," but rather to deepen the collective understanding in the DHH field of the impact that mothers AND fathers have on their children. Some investigators have begun to encourage consideration be given to the different perspectives and needs of mothers and fathers (e.g., Brand et al., 2018; Zaidman-Zait et al., 2018). As one example, increased understanding of, and accounting for, the facilitative and prohibitive factors that influence the involvement of both mothers and fathers in the intervention and care of the DHH child is needed.
4. The characteristics of father-child and mother-child interactions differ; explorations of these father-child and mother-child dynamics can be useful. It may be possible that the different results obtained from the two groups can guide understanding and intervention in important ways. If existing interventions and programs for supporting families are not addressing the needs of mothers AND fathers, this may, itself, contribute to reduced involvement of fathers.
5. There is a need for research that recognizes and explores the interactions of children who are DHH and their caregivers as bidirectional. Fathers not only can have a positive impact on their children; children can positively affect their fathers as well. Studies that have begun to examine this (e.g., Brand et al., 2018; Daud et al., 2013) suggest that fathers who are more highly involved with their DHH children's programming and who show greater acceptance of their children may have children who exhibit better social-emotional functioning and even language outcomes. A strong father-child relationship, in turn, can positively influence the family system.
6. Descriptive studies that explain whether and to what extent fathers are involved with their children are an important step, but only the initial stride toward understanding the impact of fathers on the children. Further research is needed to link fathers' presence, involvement, beliefs, attitudes, and behaviors to specific child outcomes for DHH children.
7. Researchers are encouraged to be mindful that not all families are composed of a mother, a father, and a child or children. Father-child dyads and father-father-child triads, and other family dynamics involving fathers also exist; the influences and perspectives of these fathers, too, are also worthy of consideration.

### Notes

1. Maslić Seršić, D., & Vuletić, G. (2006). Psychometric evaluation and establishing norms of Croatian SF-36 health survey: framework for subjective health research. *Croatian Medical Journal*, 47(1), 95–102. Retrieved from <https://hrcak.srce.hr/1863>
2. Akçamete, G., & Kargin, T. (1996). Determination the needs of the parents having hearing impaired children. *Journal of Special Education*, 2, 7–24. No DOI.
3. Friedrich, W. N., Greenberg, M. T., & Crnic, K. (1983). A short-form of the questionnaire on resources and stress. *American Journal of Mental Deficiency*, 88(1), 41–48. No DOI.
4. Ingber, S. (2004). The philosophy and practice of parental involvement in early intervention for children with hearing impairment in Israel. (Unpublished doctoral). Tel-Aviv University, Israel. No doi.
5. Weisbol, N. (1973). Relationships in families of a child with moderate mental retardation (Unpublished master's thesis). Bar Ilan University, Israel. No doi.

6. Guimond, A. B., Wilcox, M. J., & Lamorey, S. G. (2008). The early intervention parenting self-efficacy scale (EIPSES) scale construction and initial psychometric evidence. *Journal of Early Intervention*, 30(4), 295–320. Retrieved from <https://doi.org/10.1177/1053815108320814>
7. Dunst, C., Jenkins, V., & Trivette, C. (1984). Family support scale: Reliability and validity. *Journal of Individual, Family, and Community Wellness*, 1(4), 45–52. No doi.
8. Tonelson, S., & Watkins, S. (1979). Instruction manual for the SKI\*HI Language Development Scale: Assessment of language skills for hearing-impaired children from infancy to five years of age. SKI\*HI Institute, Utah State University, Logan, UT. No doi.
9. Zimmerman, I. L., Steiner, V. G., & Pond, R. E. (1992). *Preschool Language Scale-3, Examiner's Manual*. New York: Psychological Corporation. No doi.
10. Reid, D. K., Hresko, W. P., Hammill, D. D., & Wiltshire, S. M. (1991). *Test of Early Reading Ability: Special edition for students who are deaf or hard of hearing (TERA-D/HH)*. Austin, TX: Pro-Ed. No doi.
11. Wechsler, D. (1989). *Manual for the Wechsler Preschool and Primary Scale of Intelligence Revised*. New York: Psychological Corporation. No doi.
12. Bebko, J.M., & McKinnon, E.E. (1993). *The language proficiency profile. Unpublished assessment tool*, York University, Toronto, Canada. No doi.
13. Meadow, K. P. (1983). *Meadow-Kendall Social Emotional Assessment Inventories for Deaf and Hearing-Impaired Students, the revisedSEAI manual*. Washington, DC: Gallaudet College, Kendall Demonstration Elementary School Research Institute. No doi.
14. Achenbach, T. M. (1979). The child behavior profile: an empirically based system for assessing children's behavioral problems and competencies. *International Journal of Mental Health*, 7(3–4), 24–42. Retrieved from <https://doi.org/10.1080/00207411.1978.11448806>
15. Crittenden, P. (1981). Abusing, neglecting, problematic, and adequate dyads: differentiating by patterns of interaction. *Merrill-Palmer Quarterly*, 27, 201–218. Retrieved from <https://www.jstor.org/stable/23083982>
16. Yusoff, N., Low, W. Y., & Yip, C. H. (2009). Reliability and validity of the Malay version of Brief COPE scale: A study on Malaysian women treated with adjuvant chemotherapy for breast cancer. *Malaysian Journal of Psychiatry*, 18(1), 1–9. No doi.
17. Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: psychometric properties. *Journal of Consulting and Clinical Psychology*, 56(6), 893. <https://doi.org/10.1037/0022-006X.56.6.893>
18. Ulusoy M. (1993). *Beck Anxiety Inventory: validity and reliability*. (Unpublished thesis), Bakırköy Hospital for Mental and Nervous Disorders, Istanbul. No doi.
19. Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: a theoretically based approach. *Journal of Personality and Social Psychology*, 56(2), 267. Retrieved from <https://doi.org/10.1037/0022-3514.56.2.267>
20. Heppner, P. P., & Petersen, C. H. (1982). The development and implications of a personal problem-solving inventory. *Journal of Counseling Psychology*, 29(1), 66. Retrieved from <https://doi.org/10.1037/0022-0167.29.1.66>
21. Meyer, T. J., Miller, M. L., Metzger, R. L., & Borkovec, T. D. (1990). Development and validation of the Penn state worry questionnaire. *Behaviour Research and Therapy*, 28(6), 487–495. Retrieved from [https://doi.org/10.1016/0005-7,967\(90\)90135-6](https://doi.org/10.1016/0005-7,967(90)90135-6)
22. Francis, L. J., Brown, L. B., & Philipchalk, R. (1992). The development of an abbreviated form of the Revised Eysenck Personality Questionnaire (EPQR-A): Its use among students in England, Canada, the USA and Australia. *Personality and Individual Differences*, 13(4), 443–449. Retrieved from [https://doi.org/10.1016/0191-8869\(92\)90073-X](https://doi.org/10.1016/0191-8869(92)90073-X)
23. Cowen, E. L., Rockway, A. M., & Bobrove, P. H. (1967). Development and evaluation of an attitudes to deafness scale. *Journal of Personality and Social Psychology*, 6(2), 183–191. Retrieved from <https://doi.org/10.1037/h0024552>
24. Ireton, H., & Thwing, E. (1974). *Minnesota Child Development Inventory*. Minneapolis: Behavior Science Systems, Incorporated. No doi.
25. Waters, E., & Deane, K. E. (1985). Defining and assessing individual differences in attachment relationships: Q-methodology and the organization of behavior in infancy and early childhood. *Monographs of the Society for Research in Child Development*, 50(1–2), 41–65. Retrieved from <https://www.jstor.org/stable/3333826>
26. Quay, H. C., & Peterson, D. R. (1987). *Manual for the revised behavior problem checklist*. Department of Psychology, University of Miami, Coral Gables, FL. No doi.
27. Vernon, M., & Koh, S. D. (1970). Early manual communication and deaf children's achievement. *American Annals of the Deaf*, 115(5), 527–536. Retrieved from <https://www.jstor.org/stable/44392246>
28. Morrison, G. M. (1981). Sociometric measurement: Methodological consideration of its use with mildly learning handicapped and nonhandicapped children. *Journal of Educational Psychology*, 73(2), 193–201. Retrieved from <https://doi.org/10.1037/0022-0663.73.2.193>
29. Office of Demographic Studies (1974). *Stanford achievement test, special edition for hearing-impaired students*. Washington, DC: Gallaudet College. No doi.
30. Abidin, R. R. (1995). *Parenting stress index—Manual*. Charlottesville, VA: Pediatric Psychology Press. No doi.
31. Woerner, W., Becker, A., Friedrich, C., Klasen, H., Goodman, R., & Rothenberger, A. (2002). Normal values and evaluation of the German parents' version of Strengths and Difficulties Questionnaire (SDQ): Results of a representative field study. *Zeitschrift für Kinder- und Jugendpsychiatrie und Psychotherapie*, 30(2), 105–112. No http available. DOI: [10.1024/1422-4917.30.2.105](https://doi.org/10.1024/1422-4917.30.2.105)
32. Antonovsky, A. (1987). *Unraveling the mystery of health. How people manage stress and stay well*. San Francisco, CA: Jossey Bass.
33. Fydrich, T., Sommer, G., & Brähler, E. (2003). *Fragebogen zur Sozialen Unterstützung (F-SoZU) [Questionnaire of social support]*. Handanweisung. Hogrefe, Göttingen, Germany. No http available. DOI: [10.1026/0012-1924.45.4.212](https://doi.org/10.1026/0012-1924.45.4.212)
34. Ly, A., & Goldberg, W. (2014). New measure for fathers of children with developmental challenges. *Journal of Intellectual Disability Research*, 58(5), 471–484. Retrieved from <https://doi.org/10.1111/jir.12044>
35. Roach, M. A., Osmond, G. I., & Barrett, M. S. (1999). Mothers and fathers of children with down syndrome: Parental stress and involvement in childcare. *American Journal on Mental Retardation*, 104(5), 422–436. Retrieved from [https://doi.org/10.1352/0895-8017\(1999\)104<0422:MAFOCW>2.0.CO;2](https://doi.org/10.1352/0895-8017(1999)104<0422:MAFOCW>2.0.CO;2)



36. Senkpiel, A., & Sarimski, K. (2016). Väter von Kindern mit Down-Syndrom in der Frühförderung [Fathers of children with Down's syndrome in early intervention]. *Leben mit Down-Syndrom*, 81, 12–16. No doi.
37. Schwarzer, R. (1994). Optimistische Kompetenzerwartung: Zur Erfassung einer personellen Bewältigungsressource. *Diagnostica*, 40(2), 105–123. No doi.
38. Hawkins, A. J., Bradford, K. E., Palkovitz, R., Christiansen, S. L., Day, R. D., & Call, V. R. A. (2002). The inventory of father involvement: A pilot study of a new measure of father involvement. *Journal of Men's Studies*, 10(2), 183–196. Retrieved from <https://doi.org/10.3149/jms.1002.183>
39. Al-Yagon, M. (2009). Comorbid LD and ADHD in childhood: Socioemotional and behavioral adjustment and parents' positive and negative affect. *European Journal of Special Needs Education*, 24(4), 371–391. Retrieved from <https://doi.org/10.1080/08856250903223054>
40. Raviv, A., & Bartal, D. (1995). *The effect of child hyperactivity and motor clumsiness and the mothers' need and ability for cognitive structure on the maternal self epistemic authority and self efficacy*. (Unpublished master thesis). Tel Aviv University, Israel. No doi.
41. Soref, B., Ratzon, N. Z., Rosenberg, L., Leitner, Y., Jarus, T., & Bart, O. (2011). Personal and environmental pathways to participation in young children with and without mild motor disabilities. *Child: Care, Health and Development*, 38(4), 561–571. Retrieved from <https://doi.org/10.1111/j.1365-2214.2011.01295.x>
42. Olson, D. H., Portner, J., & Lavee, Y. (1985). *FACES LU*. St. Paul: Department of Family Science, University of Minnesota, Minneapolis, MN. No doi.
43. Teichman, Y., & Navon, S. (1990). A family evaluation: Circumflex model [Hebrew version]. *Psychologia*, 2(1), 36–46. No doi.
44. Van der Vlugt, M., Kruk, M., Geuze, R., & Bertels, R. (1994). *Computer acquisition of multiple ethological records and analysis*. Groningen: iec ProGAMMA. No doi.
45. Radin, N. (1982). Primary caregiving and role-sharing fathers. In M. E. Lamb (Ed.), *Nontraditional families: Parenting and child development* (pp. 173–204). Hillsdale, NJ: Erlbaum. No doi.
46. Konstantareas, M., Homatidis, S., & Plowright, C. M. S. (1992). Assessing resources and stress in parents of severely dysfunctional children through the Clarke modification of Holroyd's questionnaire on resources and stress. *Journal of Autism Spectrum Disorder and Developmental Disorders*, 22(2), 217–234. Retrieved from <https://doi.org/10.1007/BF01058152>
47. Dunst, C. J., Trivette, C. M., & Jenkins, V. (1988). Family support scale. In C. J. Dunst, C. Trivette, & A. Deal (Eds.), *Enabling and Empowering Families: Principles and Guidelines for Practice* (pp. 155–157). Brookline, MA: Brookline Books.
48. Bonney, J. F., Kelley, M. L., & Levant, R. (1999). A model of fathers' behavioural involvement in child care in dual-earner families. *Journal of Family Psychology*, 13 (3), 401–415. Retrieved from <https://doi.org/10.1037/0893-3200.13.3.401>
49. Schumm, W. R., Paff-Bergen, L. A., Hatch, R. C., Obiorah, F. C., Copeland, J. M., Meens, L. D., & Bugaighis, M. A. (1986). Concurrent and discriminant validity of Kansas Marital Satisfaction Scale. *Journal of Marriage and the Family*, 48(2), 381–387. DOI: 10.2307/352405 <https://www.jstor.org/stable/352405>
50. Dohrenwend, B.S. (1973). Life events as stressors: A methodological inquiry. *Journal of Health and Social Behavior*, 14(2), 167–175. DOI: 10.2307/2137066. Retrieved from <https://www.jstor.org/stable/2137066>
51. Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K.,... & Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire-II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior Therapy*, 42(4), 676–688. Retrieved from <https://doi.org/10.1016/j.beth.2011.03.007>
52. Pfizer (1999). Patient health questionnaire (PHQ) screeners. Retrieved from [https://www.phqscreeners.com/pdfs/02\\_PHQ-9/English.pdf](https://www.phqscreeners.com/pdfs/02_PHQ-9/English.pdf).
53. Shoben, E. J., Jr. (1949). The assessment of parental attitudes in relation to child adjustment. *Genetic and Psychological Monographs*, 39, 101–148. No doi.
54. Yucker, H. E., Block, J. R., & Campbell, W. J. (1960). A scale to measure attitudes toward disabled persons. *Human Resources Study*, 5, 1–14. No doi.
55. Haggerty, M. E., Olson, W. C., & Wickman, E. K. (1930). The Behavior Rating Schedules. *Manual of Directions*. World Book Co. No doi.
56. Schaefer, E. S., & Bell, R. Q. (1958). Development of a parental attitude research instrument. *Child Development*, 29(3), 339–361. <https://www.jstor.org/stable/1126348>
57. Franke, G. (1995). *SCL-90-R. The Symptom Checklist of Derogatis*. German Version. Weinheim: Beltz-Test. No doi.
58. Bullinger, M., Kirchberger, I., Steinbüchel, N. (1993) The Everyday Life Questionnaire—EDLQ—an instrument for the assessment of health related quality of life. *Zeitschrift für Medizinische Psychologie* 3: 121–131. No doi.
59. Geers A.E, Moog, J.S. (1990). *Scales of early communication skills for hearing impaired children*. Central Institute for the Deaf.
60. Derogatis, L.R. (1977). *Symptom Checklist-90-R (SCL90-R), Scoring & Procedures Manual-I for the Revised Version*, John Hopkins School of Medicine, Goldbeck. No doi.
61. Zschocke, I. Questionnaire on psychosocial support. Unpublished data, 1997.
62. Richter, B., Spahn, C. (1997). *Questionnaire for self-assessment of parental emotional state during the rehabilitation of the hearing-impaired child*. (Unpublished manuscript). No doi.
63. Richter, B., Spahn, C. (1997). *Questionnaire on initial information about hearing aid or Cochlear Implant*. (Unpublished manuscript). No doi.
64. Richter, B., Spahn, C. (1997). *Questionnaire on treatment expectations of parents with hearing impaired*. (Unpublished manuscript). No doi.
65. Schneewind, K.A. (1987). Die Familienklimaskalen (FKS), in: M.Cierpka (Ed.), *Familiendiagnostik*. pp. 320–342. Springer.
66. van den Bogaerde B (2000). *Input and interaction in deaf families*. (Doctoral dissertation), University of Amsterdam. Utrecht: LOT. No doi.
67. Woolsey, L. K. (1986). The critical incident technique: An innovative qualitative method of research. *Canadian Journal of Counselling*, 20(4), 242–254. <https://cjc-rcc.ualgary.ca/article/view/59733>
68. Meadow-Orlans, K. P. (1990). The impact of childhood hearing loss on the family. In D. F. Moores & K. P. Meadow-Orlans (Eds.), *Educational and Developmental Aspects of Deafness* (pp. 321–328). Washington, DC: Gallaudet University Press. No doi.
69. Desjardin, J. L. (2003). Assessing parental perceptions of self-efficacy and involvement in families of young children with hearing loss. *The Volta Review*, 103(4), 391–409. No doi.
70. Ingber, S., Al-Yagon, M., Dromi, E. (2010). Mothers' involvement in early intervention for children with hearing loss the



role of maternal characteristics and context-based perceptions. *Journal of Early Intervention*, 32 (5), 351–369. Retrieved from <https://doi.org/10.1177/1053815110387066>

## Conflicts of Interest

The authors have no conflicts of interest to disclose.

## References

- Allport, B. S., Johnson, S., Aqil, A., Labrique, A. B., Nelson, T., Angela, K. C., Carabas, Y., & Marcell, A. V. (2018). Promoting father involvement for child and family health. *Academic pediatrics*, 18(7), 746–53. <https://doi.org/10.1016/j.acap.2018.03.011>.
- Anagnostou, E., Graham, J., & Crocker, S. (2007). A preliminary study looking at parental emotions following cochlear implantation. *Cochlear Implants International*, 8(2), 68–86. doi: 10.1179/cim.2007.8.2.68
- Aras, I., Stevanović, R., Vlahović, S., Stevanović, S., Kolarić, B., & Kondić, L. (2014). Health related quality of life in parents of children with speech and hearing impairment. *International Journal of Pediatric Otorhinolaryngology*, 78(2), 323–329. doi: 10.1016/j.ijporl.2013.12.001
- Bayguzina, S., Yucel, E. E., & Atas, A. (2012). Determination the needs of the parents having children with Cochlear implants during transition to pre-school institutions. *Journal of International Advanced Otolaryngology*, 8(2), 253–270.
- Brand, H. J., & Coetzer, M. A. (1994). Parental response to their child's hearing impairment. *Psychological Reports*, 75(3), 1363–1368. doi: 10.2466/pr0.1994.75.3.1363
- Brand, D., Zaidman-Zait, A., & Most, T. (2018). Parent couples' coping resources and involvement in their Children's intervention program. *Journal of Deaf Studies and Deaf Education*, 23(3), 189–199. doi: 10.1093/deafed/eny011
- Brooks, R., Singleton, J. L., & Meltzoff, A. N. (2020). Enhanced gaze-following behavior in deaf infants of deaf parents. *Developmental Science*, 23(2), e12900.
- Calderon, R. & Low, S. (1998). Early social-emotional, language and academic development in children with hearing loss: families with and without fathers. *American Annals of the Deaf*, 143(3), 225–234. Retrieved from <https://www.jstor.org/stable/44392554>
- Crittenden, P. M., & Bonvillian, J. D. (1984). The relationship between maternal risk status and maternal sensitivity. *American Journal of Orthopsychiatry*, 54(2), 250–262. doi: 10.1111/j.1939-0025.1984.tb01492.x
- Crowley, M., Keane, K., & Needham, C. (1982). Fathers: The forgotten parents. *American Annals of the Deaf*, 127(1), 38–40. doi: 10.1353/aad.2012.1334
- Daud, M. M., Noor, S. S. M., Yusoff, M. N. C. M., Rahman, N. A., & Zakaria, M. N. (2013). Gender differences in coping skills of parents with hearing-impaired children. *B-ENT*, 9(4), 319–323.
- Gurbuz, M. K., Kaya, E., Incesulu, A., Gulec, G., Cakli, H., Ozudogru, E., & Colak, E. (2013). Parental anxiety and influential factors in the family with hearing impaired children: Before and after Cochlear implantation. *Journal of International Advanced Otolaryngology*, 9(1), 46–54.
- Hadadian, A. (1995). Attitudes toward deafness and security of attachment relationships among young deaf children and their parents. *Early Education and Development*, 6(2), 181–191. doi: 10.1207/s15566935eed0602\_6
- Hadadian, A., & Rose, S. (1991). An investigation of parents' attitudes and the communication skills of their deaf children. *American Annals of the Deaf*, 136(3), 273–277. <https://www.jstor.org/stable/44390066>
- Hagborg, W. J. (1989). A comparative study of parental stress among mothers and fathers of deaf school-age children. *Journal of Community Psychology*, 17(3), 220–224. doi: 10.1002/1520-6629(198907)17:3<220::AID-JCOP2290170304>3.0.CO;2-N
- Hintermair, M. (2006). Parental resources, parental stress, and socioemotional development of deaf and hard of hearing children. *Journal of Deaf Studies and Deaf Education*, 11(4), 493–513. doi: 10.1093/deafed/enl005
- Hintermair, M., & Sarimski, K. (2018). Fathers of deaf and hard-of-hearing infants and toddlers—experiences, needs, and challenges. *Journal of Deaf Studies and Deaf Education*, 24(2), 84–94. doi: 10.1093/deafed/eny040
- Ingber, S., & Most, T. (2012). Fathers' involvement in preschool programs for children with and without hearing loss. *American Annals of the Deaf*, 157(3), 276–288. Retrieved from <https://www.jstor.org/stable/26234842>
- Kumar, S., & Rao, G. (2008). Parental attitudes towards children with hearing impairment. *Asia Pacific Disability Rehabilitation Journal*, 19(2), 111–117.
- Lashewicz, B. M., Shipton, L., & Lien, K. (2019). Meta-synthesis of fathers' experiences raising children on the autism spectrum. *Journal of Intellectual Disabilities*, 23(1), 117–131. doi: 10.1177/2F1744629517719347
- Lamb, M. E. (1975). Fathers: Forgotten contributors to child development. *Human Development*, 18(4), 245–266. doi: 10.1159/000271493
- Loots, G., Devisé, I., & Jacquet, W. (2005). The impact of visual communication on the intersubjective development of early parent-child interaction with 18- to 24-month-old deaf toddlers. *Journal of Deaf Studies and Deaf Education*, 10(4), 357–375. doi: 10.1093/deafed/eni036
- Loots, G., Devisé, I., & Sermijn, J. (2003). The interaction between mothers and their visually impaired infants: An intersubjective developmental perspective. *Journal of Visual Impairment & Blindness*, 97(7), 403–417. doi: 10.1177/0145482X0309700703
- McWayne, C., Downer, J. T., Campos, R., & Harris, R. D. (2013). Father involvement during early childhood and its association with children's early learning: A meta-analysis. *Early Education & Development*, 24(6), 898–922. doi: 10.1080/10409289.2013.746932
- Mavrogiani, T., & Lampropoulou, V. (2018). The involvement of fathers with their deaf children. *International Journal of Disability, Development and Education*, 67(1), 45–57. doi: 10.1080/1034912X.2018.1551520
- McNeil, M., & Chabassol, D. (1981). Parents' perceptions of father's involvement with hearing-impaired children. *Psychological Reports*, 49(3), 803–806. doi: 10.2466/pr0.1981.49.3.803
- McNeil, M., & Chabassol, D. J. (1984). Paternal involvement in the programs of hearing-impaired children: An exploratory study. *Family Relations*, 33(1), 119–125. <https://www.jstor.org/stable/584596>
- Meadow-Orlans, K. P. (1994). Stress, support, and deafness: Perceptions of infants' mothers and fathers. *Journal of Early Intervention*, 18(1), 91–102. doi: 10.1177/105381519401800108
- Meadow-Orlans, K. P. (1995). Sources of stress for mothers and fathers of deaf and hard of hearing infants. *American Annals of the Deaf*, 140(4), 352–357. <https://www.jstor.org/stable/44390319>

- Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & The PRISMA Group (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine*, 6(7), e1000097. doi: [10.1371/journal.pmed.1000097](https://doi.org/10.1371/journal.pmed.1000097)
- Mukari, S. Z., Vandort, S., Ahmad, K., Saim, L., & Mohamed, A. S. (1999). Parents' awareness and knowledge of the special needs of their hearing-impaired child. *Medical Journal of Malaysia*, 54(1). Retrieved from [https://e-mjm.org/1999/v54n1/Hearing\\_impairment.pdf](https://e-mjm.org/1999/v54n1/Hearing_impairment.pdf)
- Munoz, K., Olson, W. A., Twohig, M. P., Preston, E., Blaiser, K., & White, K. R. (2015). Pediatric hearing aid use: Parent-reported challenges. *Ear and Hearing*, 36(2), 279–287. doi: [10.1097/AUD.0000000000000111](https://doi.org/10.1097/AUD.0000000000000111)
- Neuhaus, M. (1969). Pediatric hearing aid use: Parent-reported challenges. *Exceptional Children*, 35(9), 721–727. doi: [10.1177/001440296903500906](https://doi.org/10.1177/001440296903500906)
- Pollock, A., & Berge, E. (2018). How to do a systematic review. *International Journal of Stroke*, 13(2), 138–156. doi: [10.1177/1747493017743796](https://doi.org/10.1177/1747493017743796)
- Pruett, K. D. (1998). Role of the father. *Pediatrics*, 102(Supplement E1), 1253–1261.
- Sahli, S. (2011). Investigating child raising attitudes of fathers having or not having a child with hearing loss. *International Journal of Pediatric Otorhinolaryngology*, 75(5), 681–685. doi: [10.1016/j.ijporl.2011.02.013](https://doi.org/10.1016/j.ijporl.2011.02.013)
- Sarkadi, A., Kristiansson, R., Oberklaid, F., & Bremberg, S. (2008). Fathers' involvement and children's developmental outcomes: A systematic review of longitudinal studies. *Acta Paediatrica*, 97(2), 153–158. doi: [10.1111/j.1651-2227.2007.00572.x](https://doi.org/10.1111/j.1651-2227.2007.00572.x)
- Siddaway, A. P., Wood, A. M., & Hedges, L. V. (2019). How to do a systematic review: A best practice guide for conducting and reporting narrative reviews, meta-analyses, and meta-syntheses. *Annual Review of Psychology*, 70, 747–770. doi: [10.1146/annurev-psych-010418-102803](https://doi.org/10.1146/annurev-psych-010418-102803)
- Spahn, C., Burger, T., Löschmann, C., & Richter, B. (2004). Quality of life and psychological distress in parents of children with a cochlear implant. *Cochlear Implants International*, 5(1), 13–27. doi: [10.1080/14670100.2004.11873747](https://doi.org/10.1080/14670100.2004.11873747)
- Spahn, C., Richter, B., Burger, T., Löhle, E., & Wirsching, M. (2003). A comparison between parents of children with cochlear implants and parents of children with hearing aids regarding parental distress and treatment expectations. *International Journal of Pediatric Otorhinolaryngology*, 67(9), 947–955. doi: [10.1016/S0165-5876\(03\)00160-5](https://doi.org/10.1016/S0165-5876(03)00160-5)
- Spahn, C., Richter, B., Zschocke, I., Löhle, E., & Wirsching, M. (2001). The need for psychosocial support in parents with cochlear implanted children. *International Journal of Pediatric Otorhinolaryngology*, 57(1), 45–53. doi: [10.1016/S0165-5876\(00\)00438-9](https://doi.org/10.1016/S0165-5876(00)00438-9)
- Szarkowski, A., & Brice, P. J. (2016). Hearing parents' appraisals of parenting a deaf or hard-of-hearing child: Application of a positive psychology framework. *Journal of Deaf Studies and Deaf Education*, 21(3), 249–258. doi: [10.1093/deaf-ed/enw007](https://doi.org/10.1093/deaf-ed/enw007)
- Takala, M., Kuusela, J., & Takala, E. (2000). A good future for deaf children: A five-year sign language intervention project. *American Annals of the Deaf*, 145(4), 356–374. <https://www.jstor.org/stable/44393223>
- Wille, B., Allen, T., Van Lierde, K., & Van Herreweghe, M. (2019). Using the adapted Flemish sign language visual communication and sign language checklist. *Journal of Deaf Studies and Deaf Education*, 25(2), 188–198. doi: [10.1093/deaf-ed/enz039](https://doi.org/10.1093/deaf-ed/enz039)
- Yogman, M., Garfield, C. F., & Committee on Psychosocial Aspects of Child and Family Health (2016). Fathers' roles in the care and development of their children: The role of pediatricians. *Pediatrics*, 138(1), e20161128. doi: [10.1542/peds.2016-1128](https://doi.org/10.1542/peds.2016-1128)
- Yoshinaga-Itano, C., Sedey, A. L., Wiggin, M., & Chung, W. (2017). Early hearing detection and vocabulary of children with hearing loss. *Pediatrics*, 140(2), 1–22.
- Zaidman-Zait, A. (2007). Parenting a child with a cochlear implant: A critical incident study. *Journal of Deaf Studies and Deaf Education*, 12(2), 221–241. doi: [10.1093/deaf-ed/enl032](https://doi.org/10.1093/deaf-ed/enl032)
- Zaidman-Zait, A., Most, T., Tarrasch, R., Haddad-eid, E., & Brand, D. (2016). The impact of childhood hearing loss on the family: Mothers' and fathers' stress and coping resources. *Journal of Deaf Studies and Deaf Education*, 21(1), 23–33. doi: [10.1093/deaf-ed/env038](https://doi.org/10.1093/deaf-ed/env038)
- Zaidman-Zait, A., Most, T., Tarrasch, R., & Haddad, E. (2018). Mothers' and fathers' involvement in intervention programs for deaf and hard of hearing children. *Disability and Rehabilitation*, 40(11), 1301–1309. doi: [10.1080/09638288.2017.1297491](https://doi.org/10.1080/09638288.2017.1297491)