

Parental Resources, Parental Stress, and Socioemotional Development of Deaf and Hard of Hearing Children

Manfred Hintermair

University of Education, Heidelberg

In recent years, empowerment and resource orientation have become vital guidelines for many of the sciences. For the field of deaf education, it is also highly important to look carefully at these guidelines if we are to acquire a better understanding as regards both the situation of the parents involved and the development of the deaf and hard of hearing children themselves. A resource-oriented approach to deaf education has therefore proved especially helpful. If both the theoretical and practical aspects of educating deaf and hard of hearing children are to benefit, research on parental experience with deafness and research on the socioemotional development of the children must always be combined and studied in the context of resource availability. In a study of 213 mothers and 213 fathers of deaf and hard of hearing children, we used an array of different questionnaires (PSI, SDQ, SOC, F-SozU, etc.) to examine the correlation between parental resources, sociodemographic variables, parental stress experience, and child socioemotional problems by way of a path analysis model. The results show that high parental stress is associated with frequent socioemotional problems in the children, thus emphasizing the importance of a resource-oriented consulting and support strategy in early intervention, because parental access to personal and social resources is associated with significantly lower stress experience. Child development seems to profit enormously from a resource-oriented support concept. In addition, the results confirm two earlier findings: parents with additionally handicapped children are especially stressed and the child's communicative competence makes for a more sound prediction than its linguistic medium (spoken language or sign). The path models for mothers and

fathers agree in all essential factors. The results are discussed with a view to their meaning for pedagogical practice, and recommendations for further research are given (longitudinal data, more representative samples, cochlear implant).

Empowerment and Resource Orientation as the Means of Understanding Parental Stress Experience and the Socioemotional Development of Deaf and Hard of Hearing Children

The past few years have seen a distinct change in the way many fields of science are viewing how to deal with illness and disability. This new perspective is connected with the changing conceptions of "health". There has been a shift away from a pathogenic view to one that includes a broader notion of "relative well-being" (salutogenesis) (cf. Hintermair, 2004). This is reflected, for instance, in the motto adopted in 1998 by the largest organization of psychologists in the world, the American Psychological Association, for their 106th congress: "Promoting strength, resilience, and health in young people." In his message of welcome, M. E. P. Seligman, the president at the time, stressed the significance of mental strength for coping with day-to-day life, when he stated that 50 years of working in a medical model on personal weakness and the damaged brain would have left mental health professions ill-equipped to do effective prevention. He further stated that there is a great need for massive research on human strength and virtue.

I would like to thank Trixi Bucker and Jeannie Scott Eckert for help with the English translation of this paper. No conflicts of interest were reported. Correspondence should be sent to Manfred Hintermair, University of Education, Heidelberg, Zeppelinstrasse 3, D-69121 Heidelberg, Germany (e-mail: hintermair@ph-heidelberg.de).

This change in perspective has also become extremely important for issues pertaining to the development of deaf and hard of hearing children. It has enabled us to gain access to the strengths of deaf and hard of hearing people and their families. Indeed, in allowing us to become acquainted with their view of life, their experiences and desires, it enables us to integrate these experiences into our educational, support, and treatment concepts in a constructive manner.

Two concept-oriented approaches describe this change in perspective in a particularly clear manner and have also become increasingly important for deaf and hard of hearing education in recent years (Hintermair, 2005; Sass-Lehrer, 2003; Sass-Lehrer & Bodner-Johnson, 2003; Sonnenstrahl Benedict & Raimondo, 2003). The first is the concept of empowerment, which embodies and conveys an attitude toward people in need that is based on participation, self-responsibility, and codetermination. The second is resource orientation, a concept that is centered around how to translate an empowerment-oriented attitude into psychosocial and educational practice.

This change in perspective is the context of this article. It attempts to show that the resources available to parents and deaf or hard of hearing children—or made available to them in the period after diagnosis—are highly significant for parental stress experience and that, at the same time, the extent of this stress experience is in turn highly significant for the socioemotional development of deaf and hard of hearing children. Although there is an abundance of findings available that show a correlation between parental resources and parental stress experience on the one hand and between parental stress and child development on the other, we have yet to see an empirical study that uses one model to investigate whether there is a correlation between all three of these factors with regard to families with deaf and hard of hearing children.

The following pages give a brief synopsis of the concepts of empowerment and resource orientation, as well as review existing studies on the stress experiences of parents with deaf and hard of hearing children from the perspective of the resources at hand and explore the significance of parental stress experience for the socioemotional development of deaf and hard of hearing children.

Empowerment Orientation

Empowerment can basically be understood as giving oneself authorization or power, as acquiring or reacquiring the strength, energy, and imagination to fashion one's own circumstances in life. Behind this lie the ideas and visions of a psychosocial practice that calls out to—and above all believes in—the self-activity and the powers of self-creation in human beings. Empowerment, therefore, is the process that encourages people to take their own affairs in hand, to discover their own powers and capabilities, and to also take these seriously while at the same time learning to appreciate the value of solutions that they have worked out for themselves (cf. Rappaport, 1987).

As far as the situation of the deaf and hard of hearing is concerned, it was the “Deaf President Now” movement at Gallaudet University that in 1988 shed the clearest light on the ideas that lie at the heart of empowerment: “Their collective action took the needs of deaf people out of the disability framework and reframed these as a civil rights issue” (Andrews, Leigh, & Weiner, 2004, p. 204). Jankowski (1997, p. 131) underscores this with her comment: “Indeed, for Deaf people, a victory meant the creation of a new image. A new vision for Deaf people and the world watching them was that indeed, Deaf people ‘can.’ ”

Empowerment processes have to start very early on, and so the empowerment of deaf and hard of hearing adults begins with the empowerment of the families they are born into and in which they grow up. This has numerous implications for the actual realization of any psychosocial collaboration between professionals and the individuals affected (parents and deaf or hard of hearing children): it involves a team effort that dispenses with professional “quick fixes” and premature actions. It reckons with the capabilities of the participants. It draws its quality from exposure to the circumstances in the lives of whoever it is addressing, by watching how people act and how they search for solutions, and also by noting which solutions have already been adopted so as to be as supportive of these as possible, rather than foisting unfamiliar support models on those concerned. An empowerment-oriented approach has much to do with recognition

and acceptance of people: "Acceptance is the background music that sets the mood for the development of autonomy" (Schachtner, in Stiemert-Strecker, Teuber, & Seckinger, 2000, p. 45).

Resource Orientation

Although there are undoubtedly many facets to actually realizing the concept of empowerment in psychosocial practice, the principle that is central to acting from an empowerment perspective is the activation of resources (Lenz, 2002). Resource orientation can be seen as comprehensive development orientation, or to put it another way, as having confidence in an individual's potential for development and in being able to devise constructive conditions for such development. Implementing this mindset requires a drastically changed view of people (parents and children alike), namely that of a world picture oriented toward people's strengths and capabilities. But above all, it is about keeping one's eyes peeled for what the parents of deaf and hard of hearing children bring along in the way of capabilities—and indeed, for what these children and young people themselves have to offer in the way of capabilities. We are thus turning away from a "deficit-only" perspective (What are all the things that parents and their deaf or hard of hearing children cannot do? What do they have to learn to compensate as best as possible for this deficit?) and moving toward a "capabilities-resources" perspective that does not close its eyes to difficulties, problems, and limitations but that checks up on the people affected to see whether they themselves have the abilities and potential to confront these limitations constructively, productively, and confidently. Coping with a hearing loss must not degenerate into battling against a defect; it must instead reinforce what is available, healthy, and strong.

Accordingly, anyone interested in resources has their sights set primarily on "quality of life" as the ultimate goal. In practice, this means not letting oneself be hemmed in right at the start of an educational and treatment process by the postulates of any one method (no matter which) used to detect potentially available resources. Instead, they should first set about gathering data and information cautiously and pain-

takingly, avoiding all risk of contamination (and with quality of life as the targeted perspective), before even considering the best ways and means for everyone involved to work on with the situation of the deaf or hard of hearing child and his/her family (cf. Hintermair, 2000b, p. 163ff. for more details).

Parental Resources and Parental Stress

The diagnosis of a hearing loss is a critical life event for parents, and it is known that high stress experience can arise from it. An extensive body of literature has been published in recent years that focuses on stress in parents who have deaf or hard of hearing children (Hintermair, 2004; Lederberg & Golbach, 2001; Meadow-Orlans, Spencer, & Koester, 2004; Pipp-Siegel, Sedey, & Yoshinaga-Itano, 2002; Quittner, 1991; Quittner, Glueckauf, & Jackson, 1990; Spahn, Richter, Zschocke, Löhle, & Wirsching, 2001). The results vary, with some studies showing a higher stress level for parents of deaf and hard of hearing children than for parents of hearing children, whereas other studies show no differences between the two. Pipp-Siegel et al. (2002) ascribe this disparity to a range of factors, including "differences in sample size and statistical power, instruments used to measure stress, child age, and degree of hearing loss of the children" (p. 2). It is therefore of vital importance to know which factors influence parental stress and, in particular, pinpoint those factors that either contribute to a reduction in stress level or keep it as low as possible. This knowledge is of particular relevance if we assume that the parental stress level is important for child development.

Again, there are numerous empirical studies demonstrating which factors are relevant on the parents' side in order to rearrange their situation after the critical life event of "disability or deafness" has been diagnosed. There are some meta-analyses of studies on the situation of families with disabled children. Scorgie, Wilgosh, and McDonald (1998) have examined 25 studies on stress and coping in families of children who represent a variety of disabling conditions as well as a range of ages. They summarize the most important variables for understanding the coping process under four headings: (a) family variables (e.g., family

social economic status, cohesion, hardiness, problem-solving skills/creativity, roles and responsibilities, and composition), (b) parent variables (e.g., quality of marital relationship, maternal locus of control, appraisal, and time/schedule concerns), (c) child variables (e.g., degree of disability, age, gender, and temperament), and (d) external variables (e.g., stigmatizing social attitudes, social network supports, and collaboration with professionals). In a review of studies published over the last 20 years, Yau and Li-Tsang (1999) found five important categories for parental coping, emphasizing that these factors are interrelated and very often work together in influencing a family's adaptive coping. They warn against discussing them in isolation. The factors include personal resources, marital relationship, characteristics of the disabled child, parent support groups, and social resources. Pipp-Siegel et al. (2002) studied stress experience in 184 mothers with deaf and hard of hearing children and divided the relevant factors into three broad categories relating to the specific situation of deaf and hard of hearing children: (a) demographic characteristics of the child (e.g., age, gender, presence of additional abilities), (b) factors related to the child's hearing loss (e.g., degree of hearing loss, age of identification, language ability, mode of communication used [oral only or sign]), and (c) characteristics and perceptions of the mother (e.g., maternal education, social support, daily "hassles").

Summing up the essential factors in all these studies from a targeted *resource-oriented point of view*, it is above all the availability of personal and social resources that influences the coping process. "Social resources" essentially means the support parents of deaf children receive from their natural networks (partners, children, their own parents, relatives, friends, acquaintances, etc.) and from the so-called "artificial networks" (new contacts with other parents/parents' groups in the same situation, contact with deaf adults and professionals). 'Personal resources' are the psychological characteristics and strengths that help people to cope with difficult situations in life (e.g., optimism, sense of coherence, hardiness, self-efficacy, self-esteem), and the specific competence in dealing with the child's hearing loss acquired in the interval after diagnosis. Many studies have clearly demonstrated the effectiveness of both social and personal

resources for parents of deaf and hard of hearing children (Calderon & Greenberg, 1993, 1999; Frey, Greenberg, & Fewell, 1989; Hintermair, 2000b, 2004; Konstantareas & Lampropoulou, 1995; Lederberg & Golbach, 2001; Luckner & Velaski, 2004; MacTurk, Meadow-Orlans, Koester, & Spencer, 1993; Meadow-Orlans, 1994; Meadow-Orlans & Steinberg, 1993; Meadow-Orlans et al., 2004; Morgan-Redshaw, Wilgosh, & Bibby, 1990; Pipp-Siegel et al., 2002; Quittner et al., 1990; Webster-Stratton, 1990).

If we look at other variables in addition to resources to account for parental stress experience, we find that child age, child sex, hearing status, mode of communication, educational status, and income level all seem to be relatively poor indicators for parental stress (e.g., Calderon & Greenberg, 1999; Hintermair, 2004; Konstantareas & Lampropoulou, 1995; Lederberg & Golbach, 2001; Mapp & Hudson, 1997; Meadow-Orlans, 1990; Morgan-Redshaw et al., 1990; Pipp-Siegel et al., 2002).

In contrast, most studies show that the parents' hearing status, the child's communicative competence, and additional handicaps in the children exhibit a clear relationship to parental stress experience (e.g., Hintermair, 2004; Mapp & Hudson, 1997; Meadow-Orlans et al., 2004; Morgan-Redshaw et al., 1990; Pipp-Siegel et al., 2002; Prendergast & McCollum, 1996): deaf parents usually feel less stressed by coping than hearing parents (although there are many other daily hassles that cause this group stress), whereas parents of multihandicapped children and of children with low communicative competence are significantly more stressed.

Parental Stress and Child Development

Although we are pursuing an empowerment perspective and resource orientation on deaf education in this paper, we cannot close our eyes to the empirical facts. Thus, most studies on the psychosocial development of deaf and hard of hearing children show a significantly higher prevalence rate for socioemotional behavior problems in this group. As with studies on parental stress, it is not easy to compare results because of the great variety of methodical standards and the different number of modifying variables. Older studies show prevalence rates ranging from 8% to

more than 22% (Freeman, Malkin, & Hastings, 1975; Jensema & Trybus, 1975; Reivich & Rothrock, 1972; Rutter, Tizard, & Whitmore, 1970; Schlesinger & Meadow, 1972; Vernon, 1969; for an overview see e.g. Meadow, 1980). Only Kolvin, Fundudis, Spuy, Tweddle, and George (1979) come to a conclusion that deviates significantly from the rest, with a prevalence rate of 54%.

There are recent studies by Furstenberg and Doyal (1994), Hindley, Hill, McGuigan, and Kitson (1994), Hintermair (2006), Kelly, Kelly, Jones, Moulton, Verhulst, and Bell (1993), Mitchell and Quittner (1996), Sinkkonen (1994), van Eldik (1994, 2005), van Eldik, Treffers, Veerman, and Verhulst (2004), and Vostanis, Hayes, Di Feu, and Warren (1997). Most of these also confirm heightened prevalence rates. van Eldik et al. (2004), for example, used the Behavior Child Checklist in their recent study to evaluate statements made by 238 Dutch parents about their deaf children and arrived at a prevalence rate of 41% for their nonrepresentative sample. This means a 2.6 rise over the 16% recorded for a Dutch standardization sample. These results are further confirmed by another recent study that used an adapted form of the Youth Self Report with a sample of 202 deaf Dutch youths aged between 11 and 18 (van Eldik, 2005). Hintermair (2006) arrives at virtually identical results in a German study with 426 parents of deaf and hard of hearing children enrolled in residential schools. He used the German version of the Strengths and Difficulties Questionnaire. Again, the total problem score exhibits a 2.5 rise compared to the score of the German representative sample. If we only consider children with especially grave disorders, the score even triples. On the whole, we can therefore agree with van Eldik et al. that—*notwithstanding some exceptions*—“deaf children . . . show . . . in most studies a higher level of such problems, regardless of who is acting as the informant” (2004, p. 391).

Taking note of this higher prevalence, we have to recognize the reasons for the facts as they stand, to be able to change them in a positive direction. As Greenberg and Kuschè (1998) state, the root of the matter is, although deaf persons vary widely in their personalities, interests, and mental health, “many deaf children share developmental experiences that are

less-than optimal, including early and continued communicative deprivation, difficulties in their families of origin, less than adequate educational experiences, and continuing social stigma and prejudice” (p. 49).

Of the many factors discussed in the past, the deaf child’s family plays a particularly important role as a central place for primary social, emotional, and cognitive experiences. A number of studies show that parents of deaf and hard of hearing children with heightened stress experience usually have children who exhibit problems in their development; thus, the degree of parental stress is apparently a very important factor for the child’s development. A high stress level—most often recorded by way of questionnaires—indicates a difficult family relations situation; a great many experiences from life with a deaf or hard of hearing child are condensed in this score. In particular, studies in the field of early child development make clear that it is primarily parental behavior linked to this higher stress level that has a significant influence on child development, and not the other way around, as one might argue in theory, although reciprocal effects should of course not be ruled out.

In a study on families with premature babies, Crnic, Greenberg, Ragozin, Robinson, and Basham (1983) were able to show that mothers with high stress levels and low social support were less sensitive to their children’s signals and that consequently their behavior was less helpful for their children’s socioemotional development. This connection is confirmed by the results of other studies on high-risk children (Bakarath & Linney, 1992; Weinraub & Wolf, 1987). For counseling and supporting families with high-risk children, it is therefore crucial to know the stress experience level of parents with deaf and hard of hearing children (Meadow-Orlans et al., 2004).

A controlled longitudinal study by Pressman, Pipp-Siegel, Yoshinaga-Itano, and Deas (1999) was able to show that the mother’s sensitivity to her deaf or hard of hearing child is responsible for the child’s linguistic progress between ages 2 and 3. Regression analysis in a continuation of this study (likewise controlled) (Pressman, Pipp-Siegel, Yoshinaga-Itano, Kubicek, & Emde, 2000) demonstrated that both the mother’s emotional availability in the form of sensitivity to the child’s signals and an appropriate placing of

impulses for interaction and development were particularly predictive of the deaf children's linguistic development. Thus, sensitivity and appropriate affect and interaction regulation seem to assume special importance for the condition of "deafness."

Pipp-Siegel et al. (2002) also stress the importance of this connection for children with a hearing loss and their families: high parental stress levels are usually associated with increased child behavior problems. They were able to show in particular that families with deaf children who were diagnosed early and received good support revealed stress levels on a par with parents of hearing children, an aspect impossible to overestimate. In their longitudinal study, Lederberg and Golbach (2001) also found a difference in the stress experience of parents with deaf and hearing children at age 2 but not at age 3. Early diagnosis and intervention seem to be the best prevention strategy against stress for the parents of deaf and hard of hearing children.

Warren and Hasenstab (1986) conducted a study on self-concept development with severely and profoundly deaf and hard of hearing children and found that the parents' attitude to parenting was the best indicator of the quality of self-concept: rejection, cossetting, and overprotectiveness had a negative correlation to the child's self-concept, whereas acceptance and parental discipline in the child's upbringing had positive correlations.

Calderon and Greenberg (1993) as well as Calderon, Greenberg, and Kusche (1991) were able to show that successful coping on the mother's part has a significant influence on child development. The more successful the mothers were in acquiring helpful strategies for coping with their deaf child, the better developed the children's emotional sensitivity, reading competence, and problem-solving behavior. The children also exhibited less impulsive behavior, higher cognitive flexibility, and better social competence.

Similarly, Watson, Henggeler, and Whelan (1990) were able to show that a lack of social competence in hearing-impaired youths occurred in correlation with parental stress experience. Increased behavioral problems were associated with poor emotional adaptation and a generally stressed family situation.

Webster-Stratton (1990) points out another crucial aspect that demonstrates the close correlation between

parental experience and parental behavior: There is a close association between reported parental stress and more frequent use of punishment, discipline, and constraint in day-to-day parenting.

Brubaker and Szakowski (2000) point out that child socioemotional development is better in parent-child constellations in which parents adapt their communication behavior to their deaf child's mode of communication (matching) than with parents who do not.

Luckner and Velaski (2004) worked out the characteristics of a "healthy family" in a recent qualitative study with 19 families and concluded that "Regardless of gender, ethnicity, social class, or age, children and youth who feel cared for, accepted, and supported by their family are reported to be healthier, happier, and more competent than their peers who do not feel this way" (p. 324).

An overview of all the findings demonstrates that—primarily in early childhood and also later on—the parents' stress experience and the resulting strategies for coping with a life situation changed by deafness represent decisive factors in the child's development in various respects but especially for the child's socioemotional development.

If we look at other variables in addition to family stress and parent-child interaction aspects to account for the socioemotional problems of deaf and hard of hearing children, we find that the child's hearing status, child age, and the language used to communicate with the child (spoken language or sign language) seem to be relatively poor indicators for child development (e.g., Brubaker & Szakowski, 2000; Crowe, 2003; Hindley, 1997; Polat, 2003; van Gurp, 2001; Vostanis et al., 1997; Yoshinaga-Itano, Sedey, Coulter, & Mehl, 1998). Particularly with regard to the language used with the child, it is to state that "the method of communication (signs or speech) on its own is not a decisive factor in the development of language, cognition and social skills" (Knors, Meulemann, & Klatter-Folmer, 2003, p. 294).

In contrast, most studies show that the child's sex, additional handicaps, communicative competence, as well as the hearing status of both the child and the parents exhibit a clear relationship to the degree of socioemotional problems.

Thus, deaf and hard of hearing boys usually exhibit (with just a few exceptions) a higher rate of disorders than deaf and hard of hearing girls, especially with regard to conduct problems (aggression, etc.) (e.g., Cartledge, Paul, Jackson, & Cochran, 1991; Schnittjer & Hirshoren, 1981; Sinkkonen, 1994).

Children with additional handicaps also clearly show higher problem scores than children who are "just" deaf or hard of hearing (e.g., Hintermair, 2000a; Polat, 2003; Sinkkonen, 1994).

The child's communicative competence, regardless of what form it takes (speech or sign), also proves predictive of a positive childhood development (Greenberg, Kusché, & Speltz, 1991; Knoors et al., 2003; Mitchell & Quittner, 1996; Vostanis et al., 1997). After reviewing a number of studies, Vaccari and Marschark (1997) state that "It appears that good early communication is an important ingredient for social-emotional development in deaf children" (p. 797).

As for the parents' hearing status, it is frequently reported that deaf parents with deaf children exhibit interactive qualities in their interactive behavior comparable to those of hearing parents with hearing children (Jamieson, 1994), so that deaf children of deaf parents experience better socioemotional and age-appropriate cognitive development and do not run a higher risk of behavioral problems because of their hearing loss (Altshuler, 1974; Hilburn, Marini, & Slate, 1997; Meadow, 1966; Stokoe & Battison, 1975; Vostanis et al., 1997; Weisel, 1988). Polat (2003) points out, however, that most studies concerning these questions are older and thus date from a time when the group of deaf children with deaf parents was the only one to have any exposure to sign language because the schools had not yet opened themselves to sign. That is why Montgomery and Napier (2001) take the view that the difference between deaf children of deaf parents and deaf children of hearing parents becomes increasingly blurred as soon as the schools offer sign language in addition to oral methods.

Aim of the Study

We have seen the significance of parental resources for relieving stress and also what good parental coping (e.g., low stress levels) can mean for good socioemo-

tional child development. Despite the large number of studies on the relevant factors for both parental stress experience and socioemotional development, the correlation of parental resources, parental stress experience, and child socioemotional development, as well as its importance for the education of deaf and hard of hearing children, has not been empirically surveyed before in one model. In practical work with deaf and hard of hearing children, it is, however, of vital importance to know for sure that giving support and strength to the parents is not only valuable and stress relieving for the parents themselves but that this resource-oriented support also improves the children's own development. We must also clarify the role of other variables specific to deafness (e.g., the language used with the child, the child's communicative competence, parents' hearing status, etc.). In our analysis, as many relevant aspects as possible were to be combined in one model and checked as regards their importance. One drawback of some of the studies available in this field is that they do not consistently use multivariate analyses of the various stress-relevant factors.

Moreover, the model was to combine general stress-relieving and development-conducive factors applicable to a resource-oriented framework with specific factors for both the parents (hearing status, mode of communication) and the children (sex, additional handicap, communicative competence). The aim here was to determine their respective influence on parental stress experience and child development. We had developed a theoretical model formulated as a path diagram, which was tested empirically in this article (cf. Figure 1)

We thought it important in this context to look at the situation of mothers and fathers separately and thus bring to light any potential sex-specific differences and similarities applicable to coping with a handicap.

Methods

Procedure

The study presented here was conducted by way of a questionnaire analysis between October and December 2002. An array of questionnaires was sent out to all the schools for deaf and hard of hearing children in the

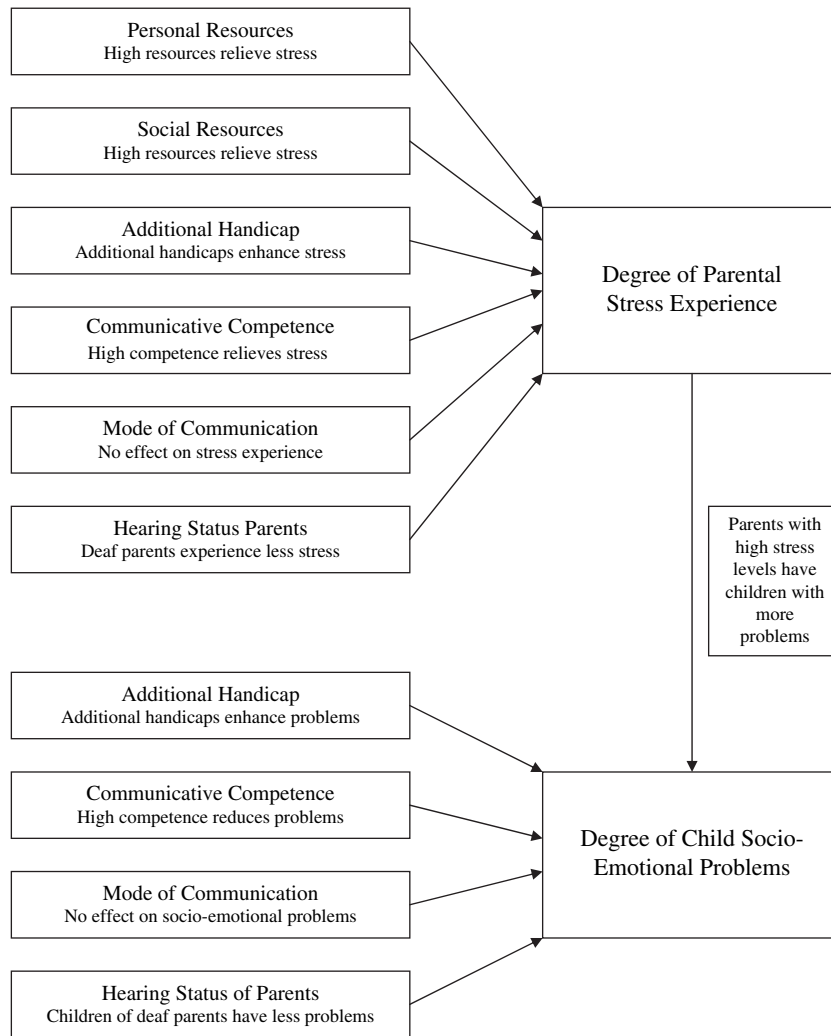


Figure 1 Theoretical model for a path analysis of the parental coping process and child socioemotional development in deaf and hard of hearing children.

German state of Bavaria, with a request to hand them out to all parents with a child between 4 and 12 years of age. This age restriction was due to the age scales in the questionnaires used (Strengths and Difficulties Questionnaire and Parent Stress Index). Identical questionnaires for mothers and fathers were included, with the express request that both parents should fill in their questionnaires independently of each other. The response rate was 35.5%. In the end, we used 213 pairs of questionnaires completed by both the mothers and fathers of the respective children. This enabled us to make a valid comparison of the experiences of mothers and fathers, which was not possible before because the father samples were too small and highly selective. This sample is not representative,

however, and for two reasons: parents of children in mainstream schools were not included and parents from other cultural backgrounds are probably not represented appropriately because of difficulties with written German. A comparison of the parents' educational status with that of the general German population (Statistisches Bundesamt [Federal Statistical Office Germany], 2003) did not yield any significant differences ($\chi^2 = 2.23$, $df = 2$, $p \leq .328$).

Participants

Table 1 shows the distribution of demographic variables for parent and child variables. It also includes each variable's code for the statistical

Table 1 Demographic information for child variables ($N = 213$) and parent variables (mothers, $N = 213$; fathers, $N = 213$)

| Variables | Parents | |
|--|-------------|-------------|
| | Mothers | Fathers |
| Hearing status | | |
| Hearing (1) | 200 (93.3%) | 206 (96.7%) |
| Deaf/hard of hearing (2) | 13 (6.1%) | 7 (3.3%) |
| Mode of communication | | |
| Oral (1) | 174 (81.7%) | 175 (82.1%) |
| Signing (2) | 39 (18.3%) | 38 (17.8%) |
| Educational status | | |
| Hauptschule = 9 years of school (1) | 92 (43.2%) | 114 (53.5%) |
| Realschule = 10 years of school (2) | 83 (39.0%) | 50 (23.5%) |
| Gymnasium = 12–13 years of school (3) | 38 (17.8%) | 49 (23.0%) |
| Child | | |
| Sex | | |
| Girls (1) | 93 (43.7%) | |
| Boys (2) | 120 (56.3%) | |
| Hearing status | | |
| ≤70 dB (1) | 80 (37.6%) | |
| 70–90 dB (2) | 74 (34.7%) | |
| >90 dB (3) | 59 (27.7%) | |
| Age ($Mdn = 9.9$ years) | | |
| 4–6 years | 20 (9.4%) | |
| 7–10 years | 88 (41.3%) | |
| 11–13 years | 105 (49.7%) | |
| Cochlear implant | | |
| Yes (1) | 50 (23.5%) | |
| No (0) | 163 (76.5%) | |
| Additional handicap | | |
| Yes (1) | 37 (17.4%) | |
| No (0) | 176 (82.6%) | |
| Time of diagnosis ($Mdn = 2.2$ years) | | |
| <12 months | 59 (27.7%) | |
| <36 months | 80 (37.6%) | |
| >36 months | 74 (34.7%) | |
| Cause for deafness | | |
| Birth/unknown (1) | 173 (81.2%) | |
| Disease (2) | 40 (18.8%) | |

analyses in parentheses. All information is taken from data based on parental knowledge and evaluations.

As regards parental hearing status, 200 mothers (93.3%) and 206 fathers (96.7%) were hearing,

whereas 13 mothers (6.1%) and 7 fathers (3.3%) were deaf or hard of hearing. About 82% of the families used only oral means to communicate, whereas the remainder of the families used at least some sign in combination with spoken language. There was no information on how good the signing competence was. Mothers and fathers differed in their educational background: There were more mothers with a German *Realschule* education (10 years of schooling) and more fathers educated either at a German *Hauptschule* (9 years' total schooling) or at a *Gymnasium*, that is, 12–13 years of schooling, usually entitling the students to continue on to university.

In this sample, 93 children (43.7%) were girls and 120 children (56.3%) were boys. The children ranged in age from 4.0 years to 12.9 years ($M = 9.63$, $SD = 2.49$, $Mdn = 9.9$). On average, the children were identified with hearing loss at 2.75 years ($SD = 2.10$). In all, 27.7% were identified within the first year of life, 37.6% by the age of 3, and the rest were over 3 years old when the diagnosis was made. Over 80% of the children were deaf or hard of hearing from birth or from unknown causes, and the roughly 20% remaining had been deafened by disease. The parents' answers indicated no additional handicap for 82.6% of the children sampled and multiple handicaps for the remaining 17.4%. We have no further information regarding the type of handicap involved or the basis used by the parents for evaluation. To evaluate the degree of hearing loss, the parents had three categories to choose from, which resulted in the following breakdown: 37.6% of the children had a mild, moderate, and moderate-severe hearing loss (≤70 dB); 34.7% had a severe hearing loss (71–90 dB); and 27.7% were profoundly deaf (>90 dB). In all, 23.5% of the sample wore a cochlear implant (what is perhaps of more interest here is that 72.3% of the group of profoundly deaf children had a cochlear implant, a constantly increasing trend in Germany over the last years).

Instruments and Measures

Stress experience. Parental stress experience was measured using the short version of the Parenting Stress Index (PSI-K-36, Abidin, 1995). The PSI is, as shown by numerous empirical studies, a reliable procedure

that measures general parental stress and specific stress experience in relation to the child by means of five-category scales (sample items: “I feel trapped by my responsibilities as a parent,” “My child makes more demands on me than most children,” “My child gets upset easily over the smallest thing”). The overall PSI stress score is a reliable indicator for parental stress experience. Statistical values: minimum value, 36; maximum value, 180; $M_{\text{mothers}} = 81.7$, $s = 22.7$; $M_{\text{fathers}} = 78.1$, $s = 20.4$; $t_{424} = 1.71$ ($p = .09$); Cronbach’s alpha = .94. A factor analysis to review the factorial structure yielded clear evidence of a two-factor structure, deviating from Abidin’s (1995) three-factor structure. The “Parental Distress” subscale was reproduced exactly, whereas 23 of the remaining 24 items were loaded onto a second factor. Aspects of a complicated parent-child relation (Parent-Child Dysfunctional Interaction) in the context of the child being experienced as difficult (Difficult Child) are collated in this factor. In the case of deaf and hard of hearing children, this might well indicate that problems of interaction cannot be reliably separated from the child’s own problems.

Socioemotional problems. The deaf children’s socioemotional problems were measured with the German parent version of the Strengths and Difficulties Questionnaire (SDQ-D, Woerner, Becker, Friedrich, Klasen, Goodman, & Rothenberger, 2002). The questionnaire is therefore a measure of the difficulties perceived by the parents. The SDQ-D provides a valid yet efficient screening procedure that takes only about 5 min to fill in and covers five essential areas of psychological development. The questionnaire has 25 items, with groups of five items forming the individual scales, namely, “emotional symptoms,” “conduct problems,” “hyperactivity (and attention),” “peer problems,” and “prosocial behavior” this last scale is pooled positively. The first four scales can be summarized into a total problem score, which is the only score used for this study. Parents must mark 25 statements pertaining to the child (e.g., “many worries, often seems worried”; “constantly fidgeting or squirming”; “considerate of other people’s feelings”; etc.) as not true (0), somewhat true (1), or certainly true (2). Statistical values: minimum value, 0; maxi-

imum value, 40; $M_{\text{mothers}} = 11.7$, $s = 6.1$; $M_{\text{fathers}} = 12.0$, $s = 6.0$; $t_{424} = -0.49$ ($p = .62$); Cronbach’s alpha = .81. A review of the factorial structure confirmed the five factors of the original scale, with a few reservations in the case of the “conduct problems” scale (Goodman, 2001).

Personal resources. The aspect of personal resources was measured in two ways: The resources available in general were collected using the German short version of Antonovsky’s “Sense of Coherence” questionnaire (SOC-K-13, Antonovsky, 1987). SOC-K-13 provides an indicator for an attitude toward life that will enable an individual to approach life with a positive and meaningful attitude, both in a cognitive and an emotional-motivational sense (Hintermair, 2004). Such an attitude is clearly highly relevant for the coping process. Parents are asked for assessments on a seven-step scale (sample items: “How often do you have the feeling that there’s little meaning in the things you do in your daily life?”; “Do you have very mixed feelings and ideas?”). Statistical values: minimum value, 13; maximum value, 91; $M_{\text{mothers}} = 62.5$, $s = 13.5$; $M_{\text{fathers}} = 64.8$, $s = 11.8$; $t_{424} = -1.90$ ($p = .06$); Cronbach’s alpha = .85.

We added one additional question to measure the parents’ subjective view of their parenting competence with their deaf child, rated on a scale of 1–5 (“I believe I have the necessary skills as father/mother to raise my deaf child”). A crucial factor for stress experience is to what extent parents acquire concrete competencies to help them deal with the child and his/her handicap on a daily basis. Statistical values: minimum value, 1; maximum value, 5; $M_{\text{mothers}} = 4.12$, $s = 0.91$; $M_{\text{fathers}} = 4.12$, $s = 0.86$; $t_{424} = 0.00$ ($p = 1.00$).

Social resources. The aspect of social resources was measured in a similar way to the previous item. For one thing, we used the short form of the Social Support Questionnaire (F-SozU-K-14, Fydrich, Sommer, & Brähler, 2003) to get an indicator for the degree of general social support experienced. This questionnaire employs five-step rating assessments (sample items: “I receive a lot of understanding and sense of security from other people,” “I know several people with whom I like to do things”). Statistical values: minimum

value, 14; maximum value, 70; $M_{\text{mothers}} = 57.4$, $s = 9.6$; $M_{\text{fathers}} = 55.4$, $s = 9.5$; $t_{424} = 2.15$ ($p = .03$); Cronbach's alpha = .92.

Again, an additional item concerning the support experienced with regard to the handicap was included (rating 1–5) (“I am satisfied with the support I receive from my social environment [family, relatives, parents, friends, acquaintances, etc.] with regard to my child's hearing loss”). Statistical values: $M_{\text{mothers}} = 3.68$, $s = 0.96$; $M_{\text{fathers}} = 3.78$, $s = 0.91$; $t_{424} = -1.19$ ($p = .23$).

Sociodemographic characteristics. An additional questionnaire recorded various sociodemographic characteristics of parents and children (cf. Table 1): for the parents, we have information on hearing status, educational status, and the mode of communication used with the child (spoken language only, sign language and spoken language). For the children, we have information on age, sex, and hearing status, as well as information on whether the child has a cochlear implant or an additional handicap, the cause of hearing loss, and the age at the time of diagnosis.

Communicative competence. To measure the children's communicative competence, we used a self-constructed scale (four items) with five-step ratings (sample items: “My child is able to tell me something about all things that are on his/her mind,” “My child is able to understand the things I/people want to tell or explain to him/her,” etc.). Statistical values: minimum value, 5; maximum value, 20; $M_{\text{mothers}} = 15.8$, $s = 2.98$; $M_{\text{fathers}} = 15.5$, $s = 2.78$; $t_{424} = 1.09$ ($p = .28$); Cronbach's alpha = .79.

Statistical Analyses

Path analysis was employed to test the sketched connection between parental resources, children's and parents' characteristics, parental stress experience, and the psychological development of deaf children in the context of the hypotheses arranged in Figure 1. Path analysis is a statistical procedure allowing statistical determination of the relative importance of various variables within a theory-based model (Backhaus, Erichson, Plinke, & Weiber, 2003).

By definition, a *confirmatory path analysis* allows verification of causal relationships between directly

observable variables, provided that the hypothetical structure has been given a sound foundation in advance (cf. Introduction). The results of the confirmatory path analysis are reported in detail in the following.

Further results of various *explorative path analyses* will not be reported in detail here but only used in a complementary manner: in an explorative analysis, additional variables are either introduced into the path model or existing variables are further specified in order to see whether the model's factual and statistical validity can possibly be expanded or optimized by such additions. We followed the usual procedure in path analysis research to obtain optimized or specified evidence from the modification indices offered by the AMOS 4.0 program. It is important to note that the additional findings elicited by modifications must be verified using a fresh set of data.

Results

Tables 2 and 3 show the correlations between the individual variables for the mothers' sample and the fathers' sample.

Confirmatory Path Analysis

Figure 2a and 2b shows the results of a model calculation on the empirical basis of the samples of 213 mothers and the corresponding 213 fathers in the form of a graph (Tables 4 and 5 show the distribution into direct and indirect effects). The coefficients in both models are standardized path coefficients. They indicate the relative strength of the connection between the relevant variables (minimum, .00; maximum, $-/+1.00$). All significant paths are shown in bold. Covariance of the variables used in the model, in accordance with their respective correlations, was included but is not represented in the graph for reasons of clarity.

The theoretical model is confirmed by the empirical data in both the mothers' and fathers' samples (mothers: $\chi^2 = 16.4$, $df = 24$, $p = .87$; fathers: $\chi^2 = 12.6$, $df = 21$, $p = .92$). All other statistical benchmarks for judging the overall structure of path models are very good. The sample size of $N = 213$ in each case is large enough to keep the risk of false conclusions

Table 2 Correlation matrix of variables (mothers, $N = 213$; Pearson)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---------------------------------|-------------|--------------|--------------|--------------|--------------|--------------|-------|--------------|--------------|-------|--------------|--------------|--------------|--------------|--------------|-------------|----|
| 1 Sex of child | — | | | | | | | | | | | | | | | | |
| 2 Hearing status of child | -0.10 | — | | | | | | | | | | | | | | | |
| 3 Time of diagnosis | 0.01 | -0.51 | — | | | | | | | | | | | | | | |
| 4 Cochlear implant | -0.03 | 0.66 | -0.36 | — | | | | | | | | | | | | | |
| 5 Additional handicap | 0.08 | -0.05 | 0.06 | -0.02 | — | | | | | | | | | | | | |
| 6 Mode of communication | 0.07 | 0.30 | -0.25 | 0.14 | 0.23 | — | | | | | | | | | | | |
| 7 Age of child | -0.05 | -0.08 | 0.21 | -0.06 | -0.03 | -0.09 | — | | | | | | | | | | |
| 8 Educational status of parents | -0.01 | 0.17 | -0.15 | 0.20 | 0.02 | 0.15 | -0.04 | — | | | | | | | | | |
| 9 Hearing status of parents | -0.05 | -0.02 | 0.01 | -0.14 | -0.01 | 0.19 | -0.11 | -0.12 | — | | | | | | | | |
| 10 Cause of deafness | 0.01 | -0.08 | 0.16 | -0.01 | -0.03 | -0.07 | 0.07 | -0.16 | -0.02 | — | | | | | | | |
| 11 Sense of coherence (SOC) | 0.02 | 0.08 | -0.06 | 0.13 | -0.04 | 0.01 | 0.00 | 0.08 | -0.11 | -0.02 | — | | | | | | |
| 12 Specific competence | 0.03 | 0.03 | 0.06 | 0.03 | -0.10 | -0.11 | -0.01 | 0.15 | -0.24 | 0.01 | 0.16 | — | | | | | |
| 13 General support (F-SozU) | 0.06 | 0.03 | -0.03 | 0.11 | -0.09 | 0.04 | -0.06 | 0.01 | -0.15 | -0.01 | 0.41 | 0.24 | — | | | | |
| 14 Specific support | 0.05 | -0.04 | -0.02 | 0.04 | -0.09 | 0.02 | 0.01 | -0.02 | -0.06 | -0.01 | 0.40 | 0.21 | 0.39 | — | | | |
| 15 Communicative competence | 0.01 | -0.16 | 0.13 | 0.02 | -0.26 | -0.26 | 0.13 | -0.06 | -0.07 | 0.07 | 0.14 | 0.32 | 0.21 | 0.35 | — | | |
| 16 Stress experience (PSI) | -0.03 | 0.01 | 0.02 | -0.06 | 0.23 | 0.06 | -0.03 | 0.08 | 0.03 | -0.08 | -0.57 | -0.30 | -0.35 | -0.45 | -0.41 | — | |
| 17 Child problem score (SDQ) | 0.14 | -0.12 | 0.10 | -0.15 | 0.16 | 0.04 | 0.05 | 0.04 | 0.06 | -0.04 | -0.36 | -0.21 | -0.27 | -0.32 | -0.30 | 0.64 | — |

Note. Bold values have a significance of $p \leq .05$.

as low as possible. With regard to the mothers, we can account for almost half the general stress experience variance (49%) and 44% of the variance for the child's psychological development with the variables included in the model. The case is similar with the fathers: The variables account for 51% of overall variance for the fathers' stress experience and 40% of the variance for the child's psychological development. The model variables thus explain or allow us to understand a large part of both parental stress experience and child socio-emotional development. It must be stated, however, that 51 or 56% of the mothers' model variance and 49 or 60% of the fathers' model variance cannot be explained by the variables.

- Regarding the importance of parents for their child, we can see that both the mothers' (.63) and the fathers' (.55) total stress experience have a highly significant correlation to the deaf child's socioemotional problems as perceived by their mothers and fathers.

Parents who feel highly stressed tend to have children with a high total problem score made up of emotional problems (headaches, stomachaches, sickness, often seems worried, often unhappy/downhearted, many fears, etc.), conduct problems (frequent temper tantrums, lying, stealing, less obedient, often fights with other children, etc.), hyperactive behavior (restless, constantly fidgeting or squirming, cannot stay still for long, easily distracted, concentration wanders, acts on impulse, etc.), and peer problems (unpopular with other children, rather solitary, tends to play alone, picked on or bullied by other children, etc.).

- The data presented here make very clear how strongly parental stress experience is influenced by the parent's resources. In particular, we can clearly see the importance of the parents' personal resources and especially of a high sense of coherence for coping with the handicap, with slightly higher values for the mothers (mothers, $-.46$; fathers, $-.37$). Parents who have acquired a high sense of coherence

Table 3 Correlation matrix of variables (fathers, $N = 213$; Pearson)

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
|---------------------------------|-------|--------------|--------------|-------------|--------------|--------------|--------------|-------|-------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|----|
| 1 Sex of child | — | | | | | | | | | | | | | | | | |
| 2 Hearing status of child | -0.09 | — | | | | | | | | | | | | | | | |
| 3 Time of diagnosis | 0.00 | -0.51 | — | | | | | | | | | | | | | | |
| 4 Cochlear implant | -0.02 | 0.66 | -0.36 | — | | | | | | | | | | | | | |
| 5 Additional handicap | 0.08 | -0.05 | 0.06 | -0.02 | — | | | | | | | | | | | | |
| 6 Mode of communication | 0.07 | 0.30 | -0.25 | 0.15 | 0.24 | — | | | | | | | | | | | |
| 7 Age of child | -0.04 | -0.08 | 0.21 | -0.06 | -0.03 | -0.09 | — | | | | | | | | | | |
| 8 Educational status of parents | 0.05 | -0.09 | -0.12 | 0.07 | 0.00 | 0.10 | -0.15 | — | | | | | | | | | |
| 9 Hearing status of parents | 0.00 | 0.09 | -0.16 | -0.04 | -0.08 | 0.26 | -0.16 | 0.13 | — | | | | | | | | |
| 10 Cause of deafness | -0.01 | -0.08 | 0.17 | -0.01 | -0.03 | -0.07 | 0.07 | -0.07 | -0.02 | — | | | | | | | |
| 11 Sense of coherence (SOC) | 0.02 | -0.06 | 0.00 | -0.02 | -0.07 | 0.00 | 0.00 | 0.08 | 0.01 | 0.02 | — | | | | | | |
| 12 Specific competence | 0.02 | -0.18 | 0.06 | -0.11 | -0.20 | -0.16 | -0.05 | -0.05 | 0.00 | 0.09 | 0.31 | — | | | | | |
| 13 General support (F-SozU) | 0.03 | -0.03 | -0.01 | 0.02 | 0.00 | -0.01 | -0.10 | 0.06 | 0.01 | 0.03 | 0.38 | 0.31 | — | | | | |
| 14 Specific support | 0.13 | -0.07 | 0.05 | 0.01 | 0.05 | -0.02 | 0.02 | -0.01 | -0.07 | 0.11 | 0.24 | 0.13 | 0.39 | — | | | |
| 15 Communicative competence | -0.02 | -0.15 | 0.09 | -0.02 | -0.13 | -0.27 | 0.12 | -0.11 | 0.04 | 0.12 | 0.24 | 0.31 | 0.24 | 0.31 | — | | |
| 16 Stress experience (PSI) | -0.05 | 0.10 | -0.04 | 0.05 | 0.15 | 0.14 | -0.01 | 0.03 | 0.02 | -0.16 | -0.53 | -0.38 | -0.38 | -0.45 | -0.44 | — | |
| 17 Child problem score (SDQ) | 0.04 | -0.05 | 0.02 | -0.09 | 0.12 | 0.08 | 0.04 | -0.07 | 0.00 | -0.05 | -0.38 | -0.25 | -0.25 | -0.36 | -0.38 | 0.61 | — |

Note. Bold values have a significance of $p \leq .05$.

and are also convinced that they have the necessary specific competence for raising their deaf child (mothers, $-.12$; fathers, $-.12$) show significantly lower stress scores. With regard to helpful and necessary social resources for parents, rather than general social support (mothers, $-.03$; fathers, $-.05$), it is the specific support adapted to the family's situation that seems to be important, that is, support from friends, acquaintances, the parents' parents, other families with deaf or hard of hearing children, and professionals (mothers, $-.15$; fathers, $-.27$). The value of specific social support is especially obvious with the fathers. Further analyses demonstrated that specific support provides great relief, especially for parent-child interaction ("Parent-Child Dysfunctional Interaction", "Difficult Child"), whereas general support is responsible for reducing emotional strain (Parental Distress).

- The specific competence acquired by the parents in coping with their child's hearing loss does not show

any direct influence on child development (mothers, $-.01$; fathers, $-.01$). The most we can see are slight, indirect effects (mothers, $-.08$; fathers, $-.06$).

- The findings presented here show that the situation of families with additionally handicapped deaf children demands special attention. Even though we cannot derive a direct influence of multiple handicaps on the child's psychological development—as other studies have—(mothers, $.00$; fathers, $.02$) there is clearly a significant effect on the parents' stress experience (mothers, $.13$; fathers, $.14$).

- We can further confirm that the child's communicative competence has a significant effect on both parents' stress experience (mothers, $-.22$; fathers, $-.19$) and—at least in the fathers' view—on the child's psychological development (mothers, $-.04$; fathers, $-.15$). Both samples also show additional indirect effects (mothers, $-.14$; fathers, $-.10$). On the other hand, the language used with the deaf or hard of hearing child (spoken language, sign language) has

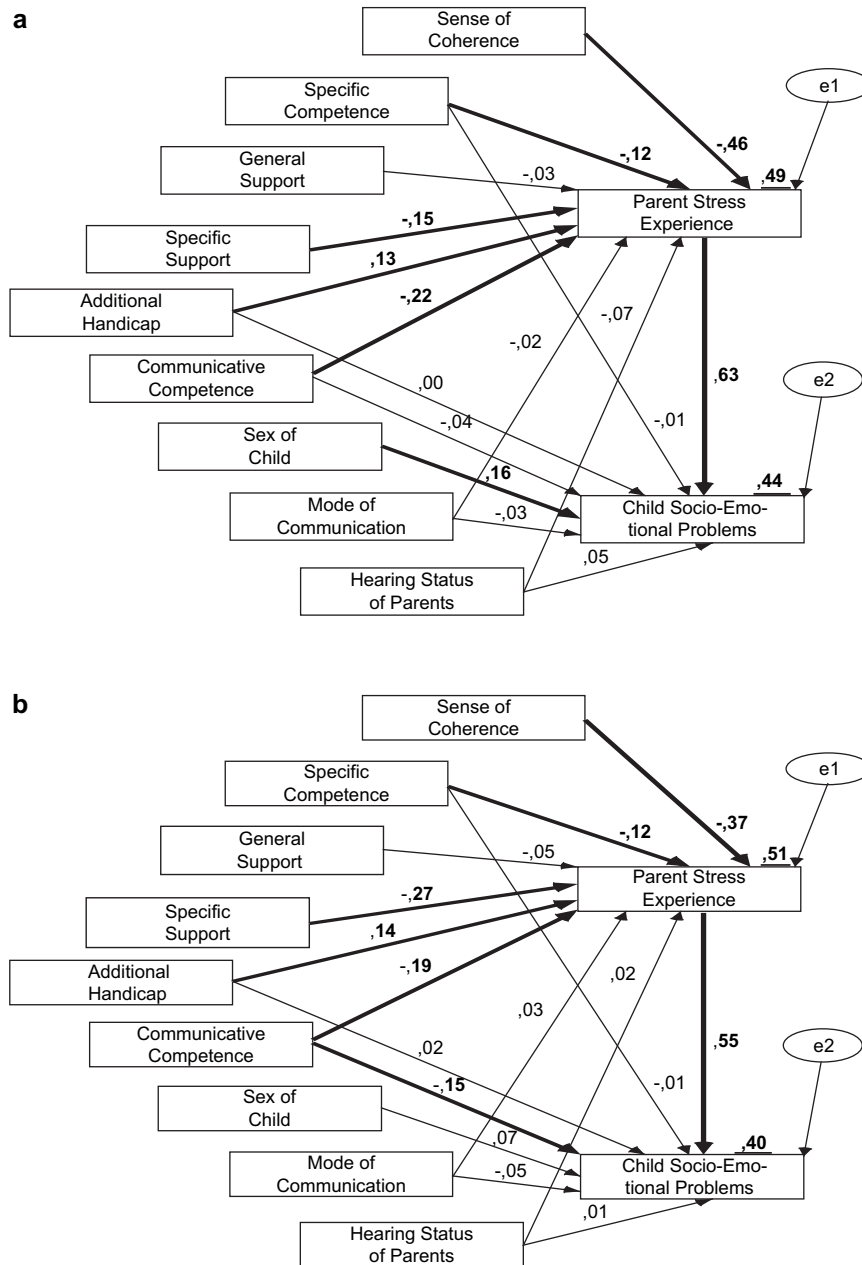


Figure 2 (a) Confirmatory path analysis (mothers, $N = 213$, $\chi^2 = 16.4$, $df = 24$, $p = .87$) and (b) confirmatory path analysis (fathers, $N = 213$, $\chi^2 = 12.6$, $df = 21$, $p = .92$).

no relevance for either parental stress experience (mothers, $-.02$; fathers, $.03$) or child socioemotional development (mothers, $-.03$; fathers, $-.05$).

- Contrary to our expectations, the parents' hearing status fails to correlate to either parental stress experience (mothers, $-.07$; fathers, $.02$) or child development (mothers, $.05$; fathers, $.01$). The influence only shows up in further analysis: deaf mothers

show lower stress scores in connection with "relationship stress" with the deaf child (Parent-Child Dysfunctional Interaction, Difficult Child), but they show comparable scores to hearing mothers for general stress aspects (Parental Distress), which affect hearing and deaf parents equally.

- With regard to the child's sex, the mothers' sample confirms the assumed correlation that boys

Table 4 Explaining child problem scores: partition into direct and indirect effects (mothers, $N = 213$)

| Variables | Direct effect | Indirect effect | Total effect | Redundancy | Zero-order (Pearson's) |
|---------------------------|---------------|-----------------|--------------|------------|------------------------|
| Sense of coherence | — | -0.29 | -0.29 | -0.17 | -0.36** |
| Specific competence | -0.01 | -0.08 | -0.08 | -0.13 | -0.21** |
| General support | — | -0.02 | -0.02 | -0.25 | -0.27** |
| Additional handicap | 0.00 | 0.08 | 0.08 | 0.08 | 0.16* |
| Communicative competence | -0.04 | -0.14 | -0.18 | -0.12 | -0.30** |
| Sex of child | 0.16* | — | 0.16 | -0.02 | 0.14* |
| Mode of communication | -0.03 | -0.01 | -0.04 | 0.08 | 0.04 |
| Hearing status of parents | 0.05 | -0.05 | 0.00 | 0.06 | 0.06 |
| Stress experience | 0.63** | — | 0.63 | 0.01 | 0.64** |

Note. Redundancy is the difference between the zero-order correlation and the total effect. Significance is noted for direct effects and zero-order correlations only.

* $p < .05$. ** $p < .001$.

show more conduct problems than girls (.16), whereas this is not true for the fathers' sample (.07).

Explorative Path Analyses

Only one of the explorative path analyses will be described here in some detail (for full details cf. Hintermair, 2005).

After carrying out the confirmatory path analysis, we included additional variables to explain aspects of parental stress experience and socioemotional development for which previous studies had as yet yielded inconsistent or few findings (hearing status child, cochlear implant, age of child, educational status of the parents, cause of deafness, time of diagnosis). The modification indices in the AMOS 4.0 program allow us to check whether additional variables have any significant influence.

As a result, we found that there was only one significant additional path in both the mothers' and the fa-

thers' samples (mothers, -.11; fathers, -.12), namely, from the cochlear implant variable to the total problem score in the deaf or hard of hearing child's socioemotional development. According to these values, children with a cochlear implant show less socioemotional problems. Further analysis with separate consideration of the various socioemotional problem areas showed that the significant contribution is mostly in the "hyperactivity" subscale (mothers, -.11; fathers, -.14), whereas the other fields (emotional problems, conduct problems, peer problems) do not have any significant influence. All other variables did not result in further optimization of the explanatory model.

Discussion

A number of variables, tested through questionnaire items, were found to account for a significant part of the variance in the reported experience of parental

Table 5 Explaining child problem scores: partition into direct and indirect effects (fathers, $N = 213$)

| Variables | Direct effect | Indirect effect | Total effect | Redundancy | Zero-order (Pearson's) |
|---------------------------|---------------|-----------------|--------------|------------|------------------------|
| Sense of coherence | — | -0.20 | -0.20 | -0.18 | -0.38** |
| Specific competence | -0.01 | -0.06 | -0.07 | -0.18 | -0.25** |
| General support | — | -0.03 | -0.03 | -0.222 | -0.25** |
| Additional handicap | 0.02 | 0.08 | 0.10 | 0.02 | 0.12 |
| Communicative competence | -0.15* | -0.10 | -0.25 | -0.13 | -0.38** |
| Sex of child | 0.07 | — | 0.07 | -0.03 | 0.04 |
| Mode of communication | -0.05 | -0.01 | -0.04 | 0.12 | 0.08 |
| Hearing status of parents | 0.01 | 0.01 | 0.02 | -0.02 | 0.00 |
| Stress experience | 0.55** | — | 0.55 | 0.06 | 0.61** |

Note. Redundancy is the difference between the zero-order correlation and the total effect. Significance is noted for direct effects and zero-order correlations only.

* $p < .05$. ** $p < .001$.

stress (around 50%) and child socioemotional problems (mothers, 44%; fathers, 40%). Thus, although the variables examined do not account for most of the variance in these factors, their influence is nevertheless considerable. In the following, the results will be discussed with a view to their significance for practical pedagogic work and for further questions that need to be examined.

The results confirm the assumed correlation between parental stress and child socioemotional problems: parents who experience less stress have children with better socioemotional development. Although the question of cause and effect cannot be settled definitely in a cross-section study, numerous theoretical and empirical findings support the hypothesis stated here that parental stress experience is the cause rather than the effect (cf. Introduction). The research on early parent-child interaction in particular suggests that parent variables are largely responsible for successful child development (cf. Pipp-Siegel et al. 2002; Pressman et al. 1999). The importance of parental experience and behavior for child development is thus corroborated. The obvious connection between parental stress and child development points to a clear task for *diagnostic practice*: The various possible sources of family stress (psychological stress, everyday stress, communicative problems, etc.) must be evaluated in detail as early as possible, and stress experience, change, or development after intervention must be continually evaluated (Meadow-Orlans et al., 2004).

As regards stress reduction in parents of deaf and hard of hearing children, the importance of a consulting and supporting strategy using a resource-oriented approach aimed at empowerment is confirmed. Such an approach has already been discussed and applied for some time in the education of deaf and hard of hearing children (Bodner-Johnson & Sass-Lehrer, 2003; Hintermair, 2004; Hintermair & Tsigiotis, 2004; Meadow-Orlans et al., 2004). With regard to personal resources, we find that a strong sense of coherence, as an indicator of a positive and meaningful basic attitude toward life, is especially relevant to successful coping (Hintermair, 2004). Specific competence in dealing with the deaf and hard of hearing child is also highly important (Calderon & Greenberg, 1999; Konstantareas & Lampropoulou, 1995). Both

personal resource components also have an indirect influence on child socioemotional development. Once again, there is proof of the vital importance of well-functioning social networks for coping with critical life events, as already demonstrated in numerous studies (Calderon & Greenberg, 1993, 1999; Hintermair, 2000b; Lederberg & Golbach, 2001; Luckner & Velaski, 2004; Meadow-Orlans et al., 2004; Morgan-Redshaw et al., 1990; Pipp-Siegel et al., 2002; Webster-Stratton, 1990). It seems that specific support adapted to the parents' changed life situation is especially important. One might consider whether the difference in the values for mothers and fathers in the sense of coherence and specific support coefficients could be interpreted as meaning that psychological support is especially important for mothers, whereas fathers need to feel sure of support specifically adapted to the child in their coping process. Following these findings, *pedagogical practice* must above all contribute to the parents' psychological empowerment by giving advice and support with regard to both the available resources and those deemed necessary. The parents must also be empowered to acquire specific competence in dealing with their deaf or hard of hearing child. The natural networks of these families must be strengthened, and parents must be assisted in restructuring or expanding their network contacts (other parents of deaf and hard of hearing children, deaf and hard of hearing adults, etc.) in order to optimize the families' social resources. Emotionally empowering, highly qualified, and individually tailored professional support is especially important here (Luckner & Velaski, 2004; Meadow-Orlans & Steinberg, 1993).

The heightened stress situation of families with additionally handicapped deaf children demonstrated in numerous studies (Hintermair, 2000a; Pipp-Siegel et al., 2002) serves as another powerful reminder of the special needs of this target group. Because of the many challenges they have to meet due to their child's multiple handicaps, parents of such children evidently need special attention. For pedagogical practice, there are by now a certain amount of experience and subsequent recommendations available on how to serve the special needs of these families (Hintermair & Hülser, 2004; Jones & Jones, 2003; Knoors & Vervloed, 2003; Meadow-Orlans, Mertens, & Sass-Lehrer, 2003).

One of the especially significant findings is that the child's communicative competence has an effect on both parental stress experience and the child's development, whereas the modality of that competence has no effect. We thus find less parenting and relationship stress in families with a communicatively competent child, with the child's development progressing better than in families without this prerequisite (Greenberg et al., 1991; Morgan-Redshaw et al., 1990; Pipp-Siegel et al., 2002; Vaccari & Marschark, 1997). This finding may be important even though we have no differentiated information about the exact use of signing with the children, meaning that the distinction between spoken language and signing in this study may be too restricted. But in following up on this finding, which has been reproduced many times by now, pedagogical practice has the important task of exploring the communicative potential and circumstances of each individual deaf or hard of hearing child and his/her family and of adapting its support on the basis of that knowledge so as to achieve the best possible communicative competence in the child regardless of modality (spoken language and/or sign language).

Deaf and hard of hearing parents do not generally show lower stress scores than hearing parents. A more detailed analysis of the stress experience showed that the group of *deaf mothers* experienced less stress than the group of hearing mothers when interacting with their child. This could mean, on the one hand, that the advantage of being deaf or hard of hearing oneself has most effect in the specific area of parent-child relations, where it is important to be able to share the child's experience. The difference between sexes, on the other hand, might be explained by the possible circumstance of mothers spending more time with their children than fathers. We must bear in mind, however, that, for one thing, the number of parents with hearing losses in this study is a very small one, and for another, because of this small number, we did not differentiate between deaf and hard of hearing parents. Nevertheless, we would be wise to adapt Anglo-American experience for use in pedagogic work in the German-speaking area much more than up to now, meaning we should recognize that deaf and hard of hearing parents have specific competences for making

their children sensitive to communicative processes and for stabilizing these processes (Mohay, 2000).

The assumption that boys show more conduct problems than girls was only confirmed for the mothers' sample in this study. It may well be that a difference exists between the sexes insofar as mothers and fathers have different criteria for judging certain forms of behavior in boys. We would have to examine the criteria for assessing a certain type of conduct as "problematic." It might indeed be the case that fathers view certain kinds of behavior as appropriate or even positive in boys ("stands his ground," "doesn't put up with everything"), whereas mothers see such things in a rather different light.

At the moment, until we have additional empirical data, we can only speculate on the correlation found in both parent samples between less frequent socioemotional problems (especially hyperactive behavior) and wearing a cochlear implant. One might explore the possibility that an increased auditive connection to and inclusion in the world helps children with both orientation and self-regulation (Archbold, Lutman, Gregory, O'Neill, & Nikolopoulos, 2002). One might further explore to what extent cochlear implant children come closer to resembling their (hearing) parents in reaction and perception patterns, so that the phenomenon of divided attention no longer presents itself in its familiar form: Hearing parents of children without an implant might be quicker to interpret a shifting glance (between objects and people) as "inattentive" or "fidgety." But it is also possible that parents of implanted children simply view their children more positively because they wish to see the implant as successful.

There are only a few differences between the analyses carried out completely separately for mothers and fathers. In view of the high correspondence in the study's pivotal variables, however, these differences are rather marginal and do not point to any serious differences. They are thus not central to the required practical pedagogic work either. According to our findings, fathers do not need specific advice or support. A resource-oriented pedagogic-therapeutic approach (Bodner-Johnson & Sass-Lehrer, 2003; Schiepek & Cremers, 2003) rather suggests that one must establish what kind and measure of support each family

member needs with a view to “quality of life” in the context of the respective person or family. In practice, this means that, with a view to this aim, we must collect data and information carefully and neatly, and not just at the very start of the pedagogic–therapeutic process but also during its further course, and only then reflect on the best possible means for dealing with the specific situation of the deaf child and his/her family under the circumstances applicable at the time.

The following aspects should be considered in further research:

Despite the difficulty with regard to this particular target group, it would be important to apply a similar design to a sample more highly representative of the population as a whole and explicitly include children in mainstream schools, children from socially disadvantaged circles, and children from foreign or migrant families.

It would also be important to carry out longitudinal studies and start with children even younger than in this article (cf. Lederberg & Golbach, 2001). This would be of interest to clarify more in detail the development of the relationship between parental resources and stress and child socioemotional development over the years.

Some concepts in this study (cf. specific parental competence, specific social support, child’s communicative competence) may show deficits because of the relatively few items used to assess them. This is something that needs more attention in further studies in order to heighten validity.

Finally, we should address the developments around the cochlear implant and take a closer look at its effect on parental stress experience and child socioemotional development as compared to deaf or hard of hearing children with hearing aids and hearing children. There is still a lot of ground to be covered here (Thoutenhoofd, Archbold, Gregory, Lutman, Nikolopoulos, & Sach, 2005).

References

- Abidin, R. R. (1995). *Parenting stress index—Manual*. Charlottesville, VA: Pediatric Psychology Press.
- Altshuler, K. Z. (1974). The social and psychological development of the deaf child: Problems, their treatment and prevention. *American Annals of the Deaf*, 119, 365–376.
- Andrews, J. F., Leigh, I. W. & Weiner, M. T. (2004). *Deaf people. Evolving perspectives from psychology, education and sociology*. Boston, MD: Allyn and Bacon.
- Antonovsky, A. (1987). *Unraveling the mystery of health. How people manage stress and stay well*. San Francisco: Jossey Bass.
- Archbold, S. M., Lutman, M. E., Gregory, S., O’Neill, C., & Nikolopoulos, T. P. (2002). The educational settings of profoundly deaf children with cochlear implants compared with age-matched peers with hearing aids: Implications for management. *International Journal of Audiology*, 41, 157–161.
- Backhaus, K., Erichson, B., Plinke, W., & Weiber, R. (2003). *Multivariate Analysemethoden. Eine anwendungsorientierte Einführung* [Multivariate methods of analysis. An application-oriented introduction]. Berlin, Germany: Springer.
- Bakarat, L. P., & Linney, J. A. (1992). Children with physical handicaps and their mothers: The interrelation of social support, maternal adjustment and child adjustment. *Journal of Pediatric Psychology*, 17, 725–739.
- Bodner-Johnson, B., & Sass-Lehrer, M. (Eds.). (2003). *The young deaf or hard of hearing child. A family-centered approach to early education*. Baltimore: Paul H. Brookes Publishing.
- Brubaker, R. G., & Szakowski, A. (2000). Parenting practices and behavior problems among deaf children. *Child & Family Behavior Therapy*, 22, 13–28.
- Calderon, R., & Greenberg, M. T. (1993). Considerations in the adaption of families with school-aged deaf children. In M. Marschark & M. D. Clark (Eds.), *Psychological perspectives on deafness* (pp. 27–47). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Calderon, R., & Greenberg, M. T. (1999). Stress and coping in hearing mothers of children with hearing loss. *American Annals of the Deaf*, 144, 7–18.
- Calderon, R., Greenberg, M. T., & Kusche, C. (1991). The influence of family coping on the cognitive and social skills of deaf children. In D. Martin (Ed.), *Advances in cognition, education and deafness* (pp. 195–200). Washington, DC: Gallaudet University Press.
- Cartledge, G., Paul, P., Jackson, D., & Cochran, L. L. (1991). Teachers’ perceptions of the social skills of adolescents with hearing impairment in residential and public school settings. *Remedial and Special Education*, 12, 34–39.
- Crnec, K. A., Greenberg, M. T., Ragozin, A. S., Robinson, N. M., & Basham, R. (1983). Effects of stress and social support on mothers and premature and full-term infants. *Child Development*, 54, 209–217.
- Crowe, T. V. (2003). Self-esteem scores among deaf college students: An examination of gender and parents’ hearing status and signing ability. *Journal of Deaf Studies and Deaf Education*, 8, 199–206.
- Freeman, R. D., Malkin, S. F., & Hastings, J. O. (1975). Psychosocial problems of deaf children and their families: A comparative study. *American Annals of the Deaf*, 120, 275–304.
- Frey, K.-S., Greenberg, M.-T., & Fewell, R. R. (1989). Stress and coping among parents of handicapped children: A multidimensional approach. *American Journal on Mental Retardation*, 3, 240–249.

- Furstenberg, K., & Doyal, G. (1994). The relationship between emotional-behavioral functioning and personal characteristics on performance outcomes of hearing impaired students. *American Annals of the Deaf, 139*, 410–414.
- Fydrich, T., Sommer, G., & Brähler, E. (2003). F-SozU. Fragebogen zur sozialen Unterstützung [Questionnaire of social support]. In E. Brähler, J. Schumacher, & B. Strauß (Eds.), *Diagnostische Verfahren in der Psychotherapie*. Göttingen, Germany: Hogrefe.
- Goodman, R. (2001). Psychometric properties of the strengths and difficulties questionnaire. *Journal of American Academic Child and Adolescent Psychiatry, 40*, 1337–1345.
- Greenberg, M. T., & Kuschè, C. (1998). Preventive intervention for school-age deaf children: The PATHS curriculum. *Journal of Deaf Studies and Deaf Education, 3*, 49–63.
- Greenberg, M. T., Kuschè, C. A., & Speltz, M. (1991). Emotional regulation, self-control and psychopathology: The role of relationships in early childhood. In D. Cicchetti & S. L. Toth (Eds.), *Internalizing and externalizing expressions of dysfunction. Rochester symposium on developmental psychopathology* (pp. 21–55). Hillsdale, NJ: Erlbaum.
- Hilburn, S., Marini, I., & Slate, J. R. (1997). Self-esteem among deaf versus hearing children with deaf versus hearing parents. *Journal of American Deafness and Rehabilitation Association, 30*, 9–12.
- Hindley, P. A. (1997). Psychiatric aspects of hearing impairment. *Journal of Child Psychology and Psychiatry, 38*, 101–117.
- Hindley, P. A., Hill, P. D., McGuigan, S., & Kitson, N. (1994). Psychiatric disorders in deaf and hard of hearing young people. *Journal of Child Psychology and Psychiatry, 35*, 917–934.
- Hintermair, M. (2000a). Hearing impaired children with additional disabilities and related aspects of parental stress. Results of a study carried out by the University of Education in Heidelberg. *Exceptional Children, 66*, 327–332.
- Hintermair, M. (2000b). Hearing impairment, social networks, and coping: The need for families with hearing-impaired children to relate to other parents and to hearing-impaired adults. *American Annals of the Deaf, 145*, 41–51.
- Hintermair, M. (2004). The sense of coherence—A relevant resource in the coping process of mothers with hearing impaired children? *Journal of Deaf Studies and Deaf Education, 9*, 15–26.
- Hintermair, M. (2005). *Familie, kindliche Entwicklung und Hörschädigung. Theoretische und empirische Analysen* [Family, child development, and deafness. Theoretical and empirical analyses]. Heidelberg, Germany: Edition Schindele.
- Hintermair, M. (2006). Sozial-emotionale Probleme hörgeschädigter Kinder—Erste Ergebnisse mit der deutschen Version des Strengths and Difficulties Questionnaire (SDQ-D) [Socio-emotional problems among hearing-impaired children—Initial results of the German version of the Strengths and Difficulties questionnaire (SDQ-D)]. *Zeitschrift für Kinder- und Jugendpsychiatrie und Psychotherapie, 34*, 49–61.
- Hintermair, M., & Hülser, G. (2004). *Familien mit mehrfachehinderten hörgeschädigten Kindern. Eine Analyse aus der Sicht betroffener Eltern*. [Families with multihandicapped deaf children. An analysis from parents' perspectives]. Heidelberg, Germany: Median-Verlag.
- Hintermair, M., & Tsirigotis, C. (2004). Ressourcendiagnostik in der Hörgeschädigtenpädagogik [Resource diagnostics in deaf education]. *Hörgeschädigtenpädagogik, 58*, 186–195.
- Jamieson, J. R. (1994). Teaching as transaction: Vygotskian perspectives on deafness and mother-child interaction. *Exceptional Children, 60*, 434–449.
- Jankowski, K. (1997). *Deaf empowerment: Emergence, struggle and rhetoric*. Washington, DC: Gallaudet University Press.
- Jensema, C., & Trybus, R. J. (1975). Reported emotional/behavioral problems among hearing impaired children in special educational programs. *Hearing Rehabilitation Quarterly, 1*, 9–12.
- Jones, T. W., & Jones, J. K. (2003). Educating deaf children with multiple disabilities. In B. Bodner-Johnson & M. Sass-Lehrer (Eds.), *The young deaf or hard of hearing child. A family-centered approach to early education* (pp. 297–327). Baltimore: Paul H. Brookes Publishing.
- Kelly, D., Kelly, B., Jones, M., Moulton, N., Verhulst, S., & Bell, S. (1993). Attention deficits in children and adolescents with hearing loss. *American Journal of Diseases of Children, 147*, 737–741.
- Knors, H., Meuleman, J., & Klatter-Folmer, J. (2003). Parents' and teachers' evaluations of the communicative abilities of deaf children. *American Annals of the Deaf, 148*, 287–294.
- Knors, H., & Vervloed, M. P. J. (2003). Educational programming for deaf children with multiple disabilities. In M. Marschark & P. E. Spencer (Eds.), *Oxford handbook of deaf studies, language and education* (pp. 82–94). New York: Oxford University Press.
- Kolvin, I., Fundudis, T., van der Spuy, H. I. J., Tweddle, E. G., & George, G. S. (1979). The hearing impaired child: Behavior and personality. In T. Fundudis, I. Kolvin, & R. F. Garside (Eds.), *Speech retarded and deaf children: Their psychological development* (pp. 175–184). London: Academic Press.
- Konstantareas, M. M., & Lampropoulou, V. (1995). Stress in Greek mothers of deaf children. *American Annals of the Deaf, 140*, 264–270.
- Lederberg, A. R., & Golbach, T. (2001). Parenting stress and social support in hearing mothers of deaf and hearing children: A longitudinal study. *Journal of Deaf Studies and Deaf Education, 7*, 330–345.
- Lenz, A. (2002). Empowerment und Ressourcenaktivierung — Perspektiven für die psychosoziale Praxis [Empowerment and activation of resources]. In A. Lenz & W. Stark (Hrsg.), *Empowerment — Neue Perspektiven für psychosoziale Praxis und Organisation* (pp. 13–53). Tübingen, Germany: DGVT-Verlag.
- Luckner, J. L., & Velaski, A. (2004). Healthy families of children who are deaf. *American Annals of the Deaf, 149*, 324–335.
- MacTurk, R. H., Meadow-Orlans, K. P., Koester, L. S., & Spencer, P. E. (1993). Social support, motivation, language and interaction. *American Annals of the Deaf, 138*, 19–25.
- Mapp, I., & Hudson, R. (1997). Stress and coping among African American and Hispanic parents of deaf children. *American Annals of the Deaf, 142*, 48–56.
- Meadow, K. P. (1966). *The effect of early manual communication and family climate on the deaf child's development*. Unpublished dissertation, University of California, Berkeley, CA.

- Meadow, K. P. (1980). *Deafness and child development*. Los Angeles: University of California Press.
- Meadow-Orlans, K. P. (1990). The impact of a child's 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.
- Meadow-Orlans, K. P. (1994). Stress, support and deafness: Perceptions of infants' mothers and fathers. *Journal of Early Intervention, 18*, 91-102.
- Meadow-Orlans, K. P., Mertens, D. M., & Sass-Lehrer, M. A. (2003). *Parents and their deaf children. The early years*. Washington, DC: Gallaudet University Press.
- Meadow-Orlans, K. P., Spencer, P. E., & Koester, L. S. (2004). *The world of deaf infants. A longitudinal study*. Oxford: Oxford University Press.
- Meadow-Orlans, K. P., & Steinberg, A. (1993). Effects of infant hearing loss and maternal support on mother-infant interactions at 18 months. *Journal of Applied Developmental Psychology, 14*, 407-426.
- Mitchell, T. V., & Quittner, A. L. (1996). Multimethod study of attention and behavior problems in hearing-impaired children. *Journal of Clinical Child Psychology, 25*, 83-96.
- Mohay, H. (2000). Language in sight: Mothers' strategies for making language visually accessible to deaf children. In P. E. Spencer, C. J. Erting, & M. Marschark (Eds.), *The deaf child in the family and at school* (pp. 151-166). Mahwah, NJ: Lawrence Erlbaum.
- Montgomery, G., & Napier, S. (2001). The teachers' assessment guide (TAG): A systematic approach to assess deaf pupils' academic ability, behavior in school and social maturity. *Deafness and Education International, 3*, 109-122.
- Morgan-Redshaw, M., Wilgosh, L., & Bibby, M. A. (1990). The parental experiences of mothers of adolescents with hearing impairments. *American Annals of the Deaf, 135*, 293-298.
- Pipp-Siegel, S., Sedey, A. L., & Yoshinaga-Itano, C. (2002). Predictors of parental stress in mothers of young children with hearing loss. *Journal of Deaf Studies and Deaf Education, 7*, 1-17.
- Polat, F. (2003). Factors affecting psychosocial adjustment of deaf students. *Journal of Deaf Studies and Deaf Education, 8*, 325-339.
- Prendergast, S. G., & McCollum, J. A. (1996). Let's talk: The effect of maternal hearing status on interactions with toddlers who are deaf. *American Annals of the Deaf, 141*, 11-18.
- Pressman, L. J., Pipp-Siegel, S., Yoshinaga-Itano, C., & Deas, A. (1999). Maternal sensitivity predicts language gain in preschool children who are deaf and hard-of-hearing. *Journal of Deaf Studies and Deaf Education, 4*, 294-304.
- Pressman, L. J., Pipp-Siegel, S., Yoshinaga-Itano, C., Kubicek, L., & Emde R. N. (2000). A comparison of the links between emotional availability and language gain in young children with and without hearing loss [Monograph]. *The Volta Review, 100*(5), 251-277.
- Quittner, A. L. (1991). Coping with a hearing-impaired child: A model of adjustment to chronic stress. In J. H. Johnson & S. B. Johnson (Eds.), *Advances in child health psychology* (pp. 206-223). Gainesville, FL: University of Florida Press.
- Quittner, A. L., Glueckauf, R. L., & Jackson, D. N. (1990). Chronic parenting stress: Moderating versus mediating effects of social support. *Journal of Personality and Social Psychology, 59*, 1266-1278.
- Rappaport, J. (1987). Terms of empowerment/exemplars of prevention: Toward a theory for community psychology. *American Journal of Community Psychology, 9*, 121-144.
- Reivich, R. S., & Rothrock, I. A. (1972). Behavior problems of deaf children and adolescents: A factor-analytic study. *Journal of Speech and Hearing Research, 15*, 93-104.
- Rutter, M., Tizard, J., & Whitmore, K. (Eds.). (1970). *Education, health and behavior. A psychological and medical study of childhood development*. New York: Wiley.
- Sass-Lehrer, M. (2003). Programs and services for deaf and hard of hearing children and their families. In B. Bodner-Johnson & M. Sass-Lehrer (Eds.), *The young deaf or hard of hearing child. A family-centered approach to early education* (pp. 153-180). Baltimore: Paul H. Brookes Publishing.
- Sass-Lehrer, M., & Bodner-Johnson, B. (2003). Early intervention: Current approaches to family-centered programming. In M. Marschark & P. E. Spencer (Eds.), *Oxford handbook of deaf studies, language and education* (pp. 65-81). New York: Oxford University Press.
- Schiepek, G., & Cremers, S. (2003). Ressourcenorientierung und Ressourcendiagnostik in der Psychotherapie [Resource orientation and resource diagnostics in psychotherapy]. In H. Schemmel & J. Schaller (Eds.), *Ressourcen. Ein Hand- und Lesebuch zur therapeutischen Arbeit*. (S. 147-193). Tübingen, Germany: DGVT-Verlag.
- Schlesinger, H. S., & Meadow, K. P. (1972). *Sound and sign: Childhood deafness and mental health*. Berkeley, CA: University of California Press.
- Schnittjer, C. J., & Hirshoren, A. (1981). The prevalence of behavior in deaf children. *Psychology in the Schools, 18*, 67-72.
- Scorgie, K., Wilgosh, L., & McDonald, L. (1998). Stress and coping in families of children with disabilities: An examination of recent literature. *Developmental Disabilities Bulletin, 26*, 22-42.
- Sinkkonen, J. (1994). Evaluation of mental health problems among Finnish hearing impaired children. *Psychiatria Fennica, 25*, 52-65.
- Sonnenstrahl Benedict, B., & Raimondo, B. (2003). Family rights, legislation and policies: What professionals need to know to promote family involvement and advocacy. In B. Bodner-Johnson & M. Sass-Lehrer (Eds.), *The young deaf or hard of hearing child. A family-centered approach to early education* (pp. 61-95). Baltimore: Paul H. Brookes Publishing.
- Spahn, C., Richter, B., Zschocke, I., Löhle, E., & Wirsching, M. (2001). The need for psychosocial support in parents with cochlear implant children. *International Journal of Pediatric Otorhinolaryngology, 57*, 45-53.
- Statistisches Bundesamt [Federal Statistical Office Germany]. (2003). *Die deutsche Bevölkerung nach Altersgruppen und Bildungsabschluss* [German population. Age groups and

- education levels]. Wiesbaden, Germany. Retrieved October 1, 2003, from <http://www.destatis.de/basis/d/biwiku/bildab1.htm>
- Stiemert-Strecker, S., Teuber, K., & Seckinger, M. (2000). Partizipation, Empowerment und Qualität in der psychosozialen Arbeit [Participation, empowerment, and quality in psychosocial work]. In K. Teuber, S. Stiemert-Strecker, & M. Seckinger (Eds.), *Qualität durch Partizipation und Empowerment. Einmischungen in die Qualitätsdebatte* (S. 35–53). Tübingen, Germany: DGVT-Verlag.
- Stokoe, W. C., Jr., & Battison, R. (1975). *Sign language, mental health and satisfactory interaction*. Unpublished paper, Linguistics Research Laboratory, Gallaudet College, Washington, DC.
- Thoutenhoofd, E. D., Archbold, S. M., Gregory, S., Lutman, M. E., Nikolopoulos, T. P., & Sach, T. H. (2005). *Paediatric cochlear implantation. Evaluating outcomes*. London: Whurr.
- Vaccari, C., & Marschark, M. (1997). Communication between parents and deaf children: Implications for social-emotional development. *Journal of Child Psychology and Psychiatry*, 38, 793–801.
- van Eldik, Th. (1994). Behavior problems with deaf Dutch boys. *American Annals of the Deaf*, 139, 394–399.
- van Eldik, Th. (2005). Mental health problems of Dutch youth with hearing loss as shown on the youth self report. *American Annals of the Deaf*, 150, 11–16.
- van Eldik, Th., Treffers, P. D. A., Veerman, J. W., & Verhulst, F. C. (2004). Mental health problems of Dutch children as indicated by parents' responses to the child behavior checklist. *American Annals of the Deaf*, 148, 390–395.
- van Gurp, S. (2001). Self-concept of deaf secondary school students in different educational settings. *Journal of Deaf Studies and Deaf Education*, 6, 54–69.
- Vernon, M. (1969). *Multiply handicapped deaf children: Medical, educational and psychological considerations* (CEC Research Monograph). Washington, DC: Council for Exceptional Children.
- Vostanis, P., Hayes, M., Di Feu, M., & Warren, J. (1997). Detection of behavioural and emotional problems in deaf children and adolescents: Comparison of two rating scales. *Child Care, Health and Development*, 23, 233–246.
- Warren, C., & Hasenstab, S. (1986). Self-concept of severely and profoundly hearing-impaired children. *The Volta Review*, 88, 289–295.
- Watson, S. M., Henggeler, S. W., & Whelan, J. P. (1990). Family functioning and the social adaption of hearing-impaired youths. *Journal of Abnormal Child Psychology*, 18, 143–163.
- Webster-Stratton, C. (1990). Stress: A potential disrupter of parent perceptions and family interactions. *Journal of Clinical Child Psychology*, 19, 302–312.
- Weinraub, M., & Wolf, B. M. (1987). Stressful life events, social supports and parent-child interaction: Similarities and differences in single-parent and two-parent families. In C. F. Z. Boukydis (Ed.), *Research on support for parents and infants in the postnatal period* (pp. 114–135). Norwood, NJ: Ablex.
- Weisel, A. (1988). Parental hearing status, reading comprehension skills and social-emotional adjustment. *American Annals of the Deaf*, 133, 356–359.
- Woerner, W., Becker, A., Friedrich, C., Klasen, H., Goodman, R., & Rothenberger, A. (2002). Normierung und Evaluation der deutschen Version des Strengths and Difficulties Questionnaire (SDQ): Ergebnisse einer repräsentativen Felderhebung [Normative data and evaluation of the German parent-rated Strengths and Difficulties Questionnaire (SDQ): Results of a representative field study]. *Zeitschrift für Kinder- und Jugendpsychiatrie und Psychotherapie*, 30, 105–112.
- Yau, M. K., & Li-Tsang, C. W. P. (1999). Adjustment and adaption in parents of children with developmental disability in two-parent families: A review of the characteristics and attributes. *The British Journal of Developmental Disabilities*, 45, 38–51.
- Yoshinaga-Itano, C., Sedey, A. I., Coulter, D. K., & Mehl, A. L. (1998). Language of early and later identified children with hearing loss. *Pediatrics*, 102, 1161–1171.

Received October 25, 2005; revisions received June 4, 2006; accepted June 5, 2006.