Children who are Deaf and hard of hearing (DHH) grow up in environments influenced by their parents’ attitudes. These attitudes may act as barriers or facilitators to children’s development and participation (World Health Organization, 2007). The attitudes held by 152 Australian parents of DHH children aged between 3.7 years and 9.5 years (mean = 6.5) were investigated using the Opinions about Deaf People scale (Berkay, Gardner, & Smith, 1995b). The parents’ responses showed they had very...

**Attitudes Towards the Capabilities of Deaf and Hard of Hearing Adults: Insights from the Parents of Deaf and Hard of Hearing Children**

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Abstract

Children who are Deaf and hard of hearing (DHH) grow-up in environments influenced by their parents’ attitudes. These attitudes may act as barriers or facilitators to children’s development and participation (World Health Organization, 2007). The attitudes held by 152 Australian parents of DHH children aged between 3;7 years and 9;5 years (mean = 6;5) were investigated using the Opinions about Deaf People scale (Berkay, Gardner, & Smith, 1995b). The parents’ responses showed they had very positive attitudes towards the capabilities of DHH adults and consistently had strongly positive responses to items describing the intellectual and vocational capabilities of DHH adults. Parents’ responses to the majority of items on the Opinions about Deaf People scale were positively skewed. This raises questions about the validity of this scale as a research tool when used with parents of DHH children. These findings suggest that for these DHH children, parents’ attitudes may be facilitative, rather than presenting an environmental barrier to children’s development.
Attitudes Towards the Capabilities of Deaf and Hard of Hearing Adults: Insights from the Parents of Deaf and Hard of Hearing Children

All environments contain barriers and facilitators, especially for people with disabilities. The complex interaction between personal characteristics, activities, and environment means that each individual with have a unique experience of the way that disability is realized in their life (Schneidert, Hurst, Miller, & Ustun, 2003). A simplified view of this interaction is that in situations where there are no barriers, an individual’s disability may have no impact on their daily life (Noreau & Boschen, 2010; Schneidert et al., 2003). An example of this occurred in Martha’s Vineyard where the community’s familiarity with deafness and use of the Island sign language “eliminated the wall that separates deaf people from the rest of society” (p. 4) and allowed Deaf and hearing people to fully participate in all aspects of community life (Groce, 1985).

The International Classification of Functioning, Disability, and Health - Children and Youth (ICF-CY; World Health Organization, 2007) is a conceptual model of health, functioning, and development describing body structures, body functions, activities, participation, environmental, and personal factors. The role of environment on the experience of disability is explicitly considered within the ICF-CY, especially the role of people’s attitudes. Attitudes are “the observable consequences of customs, practices, ideologies, values, norms, factual beliefs and religious beliefs. These attitudes influence individual behavior and social life at all levels, from interpersonal relationships and community associations to political, economic and legal structures” (World Health Organization, 2007, p. 207). The attitudes of others impacts on the lives of people with disabilities and may create significant, intangible barriers or facilitators that can have a greater impact on participation than the disability itself (Bilbao et al., 2003; Coryell, Holcomb, & Scherer, 1992; Guscia, Ekberg, Harries, & Kirby, 2006).
Attitudes Towards Deaf and Hard of Hearing Adults

The majority of DHH children are born to parents who may have little or no prior knowledge of deafness (Mitchell & Karchmer, 2004). Parents of DHH children are thrust into situations that may challenge their existing attitudes towards DHH people and what it is possible for DHH people, and for their DHH child, to achieve. Therefore, the attitudes of parents of DHH children towards DHH adults presents an interesting paradigm in which established attitudes may be challenging as they plan for the best possible future for their child. Children with disabilities are sensitive to the reactions of people towards them, which impacts on the children’s self-perception (Weisel & Gali Cinamon, 2005). For DHH children, Hadadian (1995) found that poor attachment is related to less positive parent attitudes towards DHH people. Negative attitudes may come in many guises for DHH people. Negative attitudes may be overtly hostile, but also exist more subtly in stereotypes, derogatory terminology (e.g., deaf and dumb), negative metaphors (e.g., it fell on deaf ears), and inaccurate beliefs (e.g., deaf people are quiet) (Nikolaraizi & Makri, 2004/2005; Power, 2006).

As well as confronting attitudinal barriers in their environment, DHH people may over-estimate the magnitude of negative attitudes (Stinson, 1994). Studies by Schroedel and Schiff (1972) and Furnham and Lane (1984) found that DHH people rated the attitudes of hearing people to be more negative than they actually were. A more recent study by Nikolaraizi and Makri (2004/2005) considered opinions about the capabilities of DHH people within four groups: DHH people who used Greek Sign Language (GSL), DHH people who did not use GSL, hearing people learning GSL, and hearing people who did not use GSL. The groups with the most positive attitudes were the DHH users of GSL, followed by hearing users of GSL. DHH people who did not use GSL conveyed the least positive attitudes.
Nikolarazi and Makri (2004/2005) suggested that culture (i.e., experience of Deaf culture) and experience might impact on attitudes about DHH people.

The relationship between hearing people’s attitudes towards DHH people and their own knowledge and experience with DHH people has been described in many studies. The impact of a number of factors on the positivity with which DHH people are viewed varies across studies. Knowledge about hearing loss, deafness, and the Deaf community was associated with more positive attitudes of university residential advisors at a university with a large population of deaf students (Coryell et al., 1992), but not in a study of mental health professionals (Cooper, Rose, & Mason, 2003). Prior engagement with DHH people, particularly people with significant hearing loss, has been correlated with more positive attitudes in some studies (Coryell et al., 1992; Enns, Boudreault, & Palmer, 2010; Furnham & Lane, 1984; LaBelle, Booth-Butterfield, & Rittenour, 2013), but not others (Brown Zahn & Kelly, 1995; Cambra, 1996). However, this factor may have hidden complexity. Cooper, Rose and Mason (2003) reported that contact with DHH people only positively impacted on attitudes when the DHH person was of equal or higher status and Enns et al. (2010) reported that more positive attitudes were associated with having DHH friends, but not to the number of DHH clients their participants were in contact with. Further, Coryell et al. (1992) reported that positive and negative experiences with DHH people had different impacts on attitudes.

The relationship between attitudes to DHH people and demographic characteristics, such as age, sex, education, socioeconomic status, and personality traits have also been investigated. In general, female participants have more positive attitudes towards DHH people (Cambra, 1996, 2002; Cooper et al., 2003; Kumar & Rao, 2008), although Hadadian and Rose (1991) found gender had no effect. Younger people typically had more positive attitudes (Cambra, 2002; Cooper et al., 2003; Stephens, Stephens, & von Eisenhart-Rothe, 2000), but age does not always have an impact (Schroedel & Schiff, 1972). Completing
formal training which involved learning about deafness was associated with more positive attitudes for mental health professionals (Cooper et al., 2003), but not for genetic counselors (Enns et al., 2010). For Indian parents of DHH children, more positive attitudes were associated with higher levels of general education (Kumar & Rao, 2008) and higher socioeconomic status (Kurian, 1977).

Studies that examined the attitudes of parents of DHH children also consider the characteristics of the parent’s own DHH child. Hadadian and Rose (1991) reported a trend for fathers of DHH children with poorer expressive language skills to have poorer attitudes towards DHH people, but there was no such association for children’s mothers. Studies of Indian parents of DHH children have reported findings that they interpret as being culturally relevant and expected in terms of Indian culture. Kumar and Rao (2008) reported more positive attitudes to DHH people when the parents’ own DHH child was male and/or first born, while Kurian (1977) found more positive attitudes were present when the DHH child had a more significant hearing loss.

Measures of Attitudes Towards Deaf and Hard of Hearing People

Knowledge of the attitudes of parents of DHH children is important for professionals interacting with them in order to reduce the barriers that children may be exposed to in their home environment. Professionals working with children with disabilities rarely consider environmental barriers in their work with families (Rosenbaum, 2007). However, recognizing and addressing environmental barriers, such as attitudes, may facilitate children’s participation and development. To this end, a tool is required that educators and practitioners can use to understand the attitudes of parents of DHH children. Much of the previous research into attitudes towards DHH people has been conducted using custom-designed, project-specific, unpublished tools. However, a handful of more formal instruments have been developed.
Scales that investigate attitudes towards people with disabilities have been used to investigate attitudes towards DHH people. These scales lack reference to the cultural and linguistic identity of many DHH people and so may not be relevant (Kiger, 1997). Adaptations of these scales to describe DHH people may contain many generic items (such as the Attitudes to Deafness Scale; Cowen, Rockway, Bobrove, & Stevenson, 1967) or have not been independently evaluated (such as The Attitudes Towards Disabled Persons [Deaf Version]; Furnham & Lane, 1984). However, measures exist which have been rigorously developed and tested, and relate specifically to DHH people. Cooper et al. (2003) developed the Attitudes Towards Deaf People Scale for use with professionals working with DHH people. This questionnaire contains items that may be of contemporary relevance to the Australian context and to the parents of DHH children, such as “Deaf schools and deaf clubs create deaf “ghettos”” (p. 388) and “I would like to have more deaf colleagues” (p. 388).

Berkay and colleagues (Berkay et al., 1995b) developed the Opinions about Deaf People (ODP) scale aims to assess hearing adults’ beliefs about the capabilities of DHH adults and was developed through literature review and interviews with Deaf adults and Deaf professionals. The ODP scale examines one aspect of attitude, the capabilities of DHH adults, and has previously been used in research with undergraduate students, and hearing and deaf adults with a variety of knowledge of Deaf culture and sign language (Berkay, Gardner, & Smith, 1995a; Nikolaraizi & Makri, 2004/2005). Berkay, Gardner, and Smith (1994b) validated the ODP scale with a sample of 290 undergraduate students and identified a “common general deaf capacities factor” and an “intelligence factor” within their data. Construct validity for the ODP was undertaken through comparison of these students responses to the ODP and the previously validated Attitudes to Deafness Scale (Cowen et al., 1967). The authors concluded that “a reliable and valid scale may have been developed that can be used for research in education, employment and other appropriate settings” (p. ii).
The current paper investigated two questions that are of direct relevance to researchers, educators, and clinicians working with DHH children and their families. First, what opinions do parents of young DHH children hold about the capabilities of DHH adults? The attitudes of the parents described in this paper are drawn from a population-based sample of DHH children that encompasses children with different degrees of hearing loss, using different communication modes, and with a range of communication abilities. The heterogeneity of this sample of parents, and the number of parents surveyed, allow for a thorough view of the attitude that parents hold about the capabilities of DHH adults. Second, is the Opinions about Deaf People scale (Berkay et al., 1995b) a valid measure of the attitudes of parents of young DHH children? The research presented in this paper is the first to use a previously validated measure to investigate the attitudes of parents of DHH children. Examining the properties of this measure when used with this population will reveal whether it is appropriate for use as a research, educational, and/or clinical tool with parents of DHH children.

**Method**

**Context of the Current Research**

The parents surveyed in this study all had children participating in the Longitudinal Outcomes of Children with Hearing Impairment (LOCHI) study. The LOCHI study is a prospective, population-based study that was initiated in 2005 to examine the audiological, speech, language, academic, and functional outcomes of DHH children (Ching et al., 2013). All children born between 2002 and 2007 in the Australian states of New South Wales, Queensland, and Victoria were invited to participate in the LOCHI study if they were diagnosed with a bilateral hearing loss and accessed an Australian Hearing pediatric hearing centre before they were 3-years-old. Australian Hearing in a government-funded agency that provides audiological assessment, management, hearing aids, repairs, and parts to all children.
who are Australian citizens and residents (Australian Hearing, 2005). Parents were invited to enrol their children in the LOCHI study regardless of their own hearing status, language skills and background, educational experience, geographic location, socioeconomic status, and whether their children had any needs in addition to hearing loss. Parents regularly complete written English questionnaires as part of the LOCHI study.

**Participant Recruitment**

Two copies of a questionnaire were posted to the homes of the 450 children participating in the LOCHI study in July 2011 with reply-paid envelopes. Parents were instructed “If your child has more than one primary caregiver we would appreciate it if each caregiver could complete the questionnaire. This gives each caregiver the opportunity to express his/her individual opinion”.

**Participants**

*Parents’ Characteristics*

Questionnaires were returned by 177 parents. Responses from 25 parents were excluded because they did not respond to one or more statements on the ODP scale. Both parents returned questionnaires for 19 children. Therefore, the present study described 152 parents of 133 DHH children who completed all items of the ODP scale (33.8% of the children enrolled in the LOCHI study). The majority of respondents were female (83.6%) and lived in areas of relatively less disadvantage. The majority of parents reported that they were culturally Australia (80.2%). Cultural backgrounds reported were: American, Australian, Australian Aboriginal, Chinese, English, European, Filipino, Greek, Indian, Iraqi, Irish, Italian, Japanese, Jordanian, Lebanese, Malaysian, Maltese, New Zealand, Pakistani, Polish, South African, South Sudanese, United Kingdom, and Vietnamese.

Over half of the parents \((n = 82, 53.9\%)\) reported having a family member or friend with hearing loss who used speech, with fewer reporting having a family member or friend
who used sign: 32 (21.1%) had a family member or friend with hearing loss who used sign and 26 (17.1%) had a family member or friend without hearing loss who used sign (Table 1). There were 21 (13.8%) parents who identified themselves a member of the Deaf community and 29 (19.0%) parents reported having more than one child with a hearing loss. Parents reported on their own proficiency using speech and sign as none, minimal, functional, or fluent. The majority of parents ($n = 142$, 93.4%) reported they were fluent users of speech and most ($n = 86$, 56.6%) reported having no proficiency using signed communication (see Table 1). Where parents did use signed communication, parents’ highest self-reported proficiency was for Australian Sign Language (Auslan), followed by Signed English, Cued Speech, Makaton (keyword signing), and fingerspelling.

**Children’s Characteristics**

At the time of completing the questionnaire, the children whose parents completed this questionnaire were aged between 3;7 years and 9;5 years (mean = 6;5) and more were male ($n = 71$, 53.4%) than female (Table 2). Parents did not report the severity of their child’s hearing loss; however, children participating in the LOCHI study have hearing losses ranging in severity from mild to profound (Ching et al., 2013). More children used hearing aids ($n = 81$, 60.9%) than cochlear implants ($n = 52$, 39.1%) and the mean age of first hearing aid fitting was 11 months ($SD = 12$). Parents reported that 36 (27.0%) of the children had a disability in addition to hearing loss. Nearly all children ($n = 120$, 90.2%) used speech as part or all of their communication system with fewer children currently using sign ($n = 26$, 19.5%). A third of children had used sign at some time during their life ($n = 46$, 34.6%) (Table 2).
Questionnaire

A 14-page questionnaire was developed to investigate parent decision-making about communication for their DHH child (analyzed in Crowe, Fordham, McLeod, & Ching, 2014; Crowe, McLeod, McKinnon, & Ching, 2014). Questionnaires took approximately 10-30 minutes to complete. As part of this questionnaire, parents completed the Opinions about Deaf People (ODP) scale (Berkay et al., 1995b). The ODP scale contains 20 statements that convey either positive attitudes to DHH people, such as “A deaf person could be promoted to a management position”, or negative attitudes to DHH people, such as “Smarter deaf people have better speech than deaf people who are less intelligent” (full questionnaire is presented in Berkay et al., 1995b). All items appeared relevant and appropriate to parents of DHH children, even though the ODP scales was developed 20 years previously. Statements contextualize the capabilities of DHH adults in real-world contexts across six categories: academic, communication, driving, and vocational skills, intelligence, and independence. Respondents indicate their agreement with each statement using a 4-point Likert-like scale with no mid-point: strongly agree, mildly agree, mildly disagree, strongly disagree. Scores range between 20 and 80, with lower scores reflecting more positive attitudes towards DHH people and higher scores reflect more negative attitudes (Berkay, Gardner, & Smith, 1994a). Parents were instructed “this question is asking for your opinions about deaf people. This is not about people who have a mild hearing loss or elderly people who have lost their hearing late in life. Please complete all items. There are no right or wrong answers”.

Data Analysis

Participants’ responses were analyzed in terms of frequency, central tendency, variability, and distribution shape using Statistical Program for the Social Sciences (IBM, 2012). Exploratory factor analyses with principal components extraction and oblimin rotation were computed on parents’ responses to the ODP items.
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Ethical Approval

Ethical approval for the collection and use of this data was obtained through the Human Research Ethics Committees of Australian Hearing and Charles Sturt University. Ethical standards were met in the collection of these data.

Results

Parents’ Attitudes about DHH Adults

The 20 items of the ODP scale were completed by 152 parents of 133 DHH children. Scores for all items ranged from the minimum possible value of one to the maximum possible value of four. Mean item scores (min=1.05, max=1.84), median item scores (min=1, max=2), and item skewness (min=0.68, max=8.06) all indicate that parents had positive attitudes towards the capabilities of DHH people, as measured by the ODP (Table 3). A positive skew indicates opinions with the greatest equality between hearing and DHH adults’ capabilities. The three most positively skewed items were “Deaf people are as intelligent as hearing people” (skewness=8.06), “A deaf person could get a PhD or a Masters degree” (skewness=6.72), and “It is unfair to limit deaf people to low-paying, unskilled jobs” (skewness=5.58). Conversely, a negative skew indicates opinions with the least equality between hearing and DHH adults’ capabilities. The three least positively skewed items were “Deaf people drive just as safely as hearing people” (skewness=0.68), “It is nearly impossible for a deaf person to keep up with a hearing person in school” (skewness=0.78), and “If there was a fire, a deaf person could get out of a building safely without help just as easily as a hearing person could” (skewness=1.01).

The ODP total score was calculated by adding scores for each item, as described by Berkay et al. (1994a). Given a potential range of scores between 20 and 80, the mean score of 26.32 (median=25.0, SD=5.57) for the ODP is within the range described as being “a positive
attitudes about the capabilities of deaf adults” (Berkay et al., 1994a, p. 2). This positive skew in responses (see Figure 1) indicated that the parents believe hearing and DHH adults have close to equal capability in the situations described. However, analysis of the internal consistency and additive properties of items on the ODP scale revealed moderate levels of internal consistency and poor additivity (Cronbach’s Alpha = 0.773; Tukey’s test of additivity = -0.445). The skewed nature of responses meant that no mathematical transformations could be employed to better condition the individual item scores to produce a scale with good additivity. Items suggested by the reliability analysis were systematically dropped from potential scales in a series of analyses. This process still did not yield any additive scales, as suggested by Berkay et al. (1994b). It was therefore not appropriate to consider the total ODP scale score as a measure of these parents’ attitudes and the Total ODP score was not included in any further analysis. The skewed nature of responses to these items has important implications for the use of the ODP scale, and this is taken up in the discussion.

Insert Figure 1 about here

Exploratory factor analyses with principal components extraction and oblimin rotation were computed on the 20 items of the ODP scale. Factor analysis of the items initially yielded six factors with an Eigen values greater than one, which cumulatively accounted for 66.7% of the variance. Three factors contained two or less items. Examination of all six factors for interpretability revealed two conceptually interpretable factors. The exploratory factor analysis was recomputed with only two factors being specified. Inspection of these two factors revealed that all of the positively worded items were present in one factor and all of the negatively worded items were present in the other. The most heavily loading item on the Positively Worded Items factor was “Deaf people are as intelligent as hearing people”. The most heavily loaded item on the Negatively Worded Items factor was “Deaf adults must
depend on their parents to make important decisions”. Together, 39.3% of the variance was accounted for by these factors. Both factors were skewed towards positive opinions (Table 4).

Factor 1, *Positively Worded Items*, showed moderate internal consistency and reasonable additivity (Tukey’s test of additivity = -0.698) (Table 4). Factor 2, *Negatively Worded Items*, also showed moderate internal consistency and poor additivity (Tukey’s test of additivity = -1.594) (Table 4). That is to say, the positively worded items could be added together to form a reasonable scale with high internal consistency but the negatively worded items were problematic. The negative wording of these items may involve a *method factor* that detracts from people’s willingness to respond as strongly to negatively worded items as they do to positively worded items. This merits further analysis with a population who would more likely to express a range of attitudes about the capabilities of DHH adults.

Discussion

This study sought to examine the attitudes that parents of DHH children have about the capabilities of DHH adults. Overall, the parents had very positive attitudes towards the capabilities of DHH adults. The items on the ODP scale that were consistently most strongly agreed with related to the intellectual and vocational capabilities of DHH people. The ICY-CY considers that attitudes may be facilitatory or may create barriers in children’s environments (WHO, 2007). The positive skew in response to all items on the ODP would suggest that the attitudes of these parents of DHH children are facilitatory and may have positive consequences for their children’s development, education, and employment, rather than presenting an environmental barrier.

The ODP scale has not been previously used to examine the attitudes of parents of DHH children. Three previous studies have examined the attitudes of parents using different measures. Hadadian and Rose (1991) used the Attitudes to Deafness scale (Cowen et al.,
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1967) but did not report on parents’ attitudes overall, only their attitudes in relation to their attachment to their DHH children. Kumar and Rao (2008) and Kurian (1977) developed their own questionnaires for their studies and did not report on parents’ attitudes overall or compare the responses of parents on this scale to previous research or normative references.

In developing and validating the ODP scale Berkay et al. (1994b) collected data from 290 undergraduate students at the University of Oklahoma in 1993. Berkay et al. (1994b) also found that the results of these students on the ODP scale were skewed towards more positive attitudes (skewness=0.32, kurtosis=0.85); however, the mean score for each item within the scale was higher for the Berkay et al. sample than found in this study. Criterion validity for the ODP was examined by Berkay et al. (1994b) by participants completing both the ODP and the Attitudes to Deafness Scale (Cowen et al., 1967). Responses to both scales showed a similar trend towards these participants having more positive attitudes than previously reported mean values. Berkay et al. (1994b) hypothesized that this skew in the results may be because “this group of undergraduate students might not adequately represent the general hearing adult population, which includes high school drop-outs” (p. 57).

The participants in this study were also not typical of the general hearing adult population, as all had at least one DHH child. The purpose of this investigation was not to examine the discrimination, reliability, or validity of the ODP scale but to establish if the ODP is an appropriate and useful measure to use with the parents of DHH children. The highly skewed nature of responses to most items in this sample is problematic in the development of a scale that could be used in further statistical analyses of the total OPD score, which limits the value of the ODP as a research tool with this population. However, observation of the highly skewed nature of the responses, poor scale additivity, and the poor factor structure raises questions about the validity of the ODP when used with the parents of DHH children and merits further investigation.
There are a number of reasons that the attitudes of parents in this study were so positive, particularly in relation to the Berkay et al. (1994b) study. First, the participants in the present study are a specific subgroup of the general population, who share a common trait that is likely to affect their responses on the ODP scale. As all participants have a DHH child, they were more likely to have a developed opinion about the capabilities of DHH adults than members of the general public.

Second, the parents in the present study had many of the characteristics that have been associated with more positive attitudes towards deafness in previous research. The majority of parents would have knowledge about deafness and previous experiences with DHH people, and were young, female, hearing, well-educated, and from areas of relatively less socioeconomic disadvantage. In research with mental health professionals, Cooper et al. (2003) found that contact with DHH people who were of equal or higher status was related to more positive attitudes, while contact with DHH people of lower status was not. Although parents in the present study were not explicitly asked about the status of deaf people that they had met, it is likely that parents may have been in contact with DHH professionals such as educators, audiologists, or support workers. Experiences such as these may impact greatly on parents’ opinions about the intellectual and vocations capabilities of DHH people.

Third, the responses of these parents may have been influenced by their own optimism about what they hope that their DHH children will be able capable of as adults. Research with this same cohort of parents showed that when deciding how their children should communicate, parents placed importance on planning for their children’s future opportunities, especially their academic and vocational success (Crowe, Fordham, et al., 2014; Crowe, McLeod, et al., 2014). Further, the ODP was only able to measure the attitudes that parents were willing to convey, which is not necessarily the same as their true attitudes. As Parasnis, DeCaro and Ramen (1996) stated in relation to their study of teachers’ and
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parents’ attitudes towards career suitability for DHH adults, “we will consider this measurement as an index of what people are willing to project as their attitudes” (p. 308).

Finally, DHH people and sign language are increasingly visible and topical in everyday life, compared to when the students of Berkay et al. (1994b) completed the ODP scale in 1992. For example, there are guidelines for how deaf and hard of hearing people should be portrayed in the media (Deaf Australia Inc, 2014; National Association of the Deaf, 2014) and media presents a powerful medium through which attitudes about minority groups can be influenced (Golos, 2010). DHH people and sign language are increasingly visible in the context of the Australian media, especially through the presence of sign language interpreters in emergency new coverage (e.g., cyclones, floods, and bushfires) as well as on community and children’s television programs, and television drama.

Clinical Application

The ODP may assist professionals working with parents of DHH children by providing a context for discussing parental attitudes that may be create not-yet tangible barriers to their children’s participation, and guide professionals provision of information and experiences aimed at developing more positive and realistic attitudes to shape children’s environment. Completion of this scale may provide educators and clinicians with insight into some of the attitudinal barriers and facilitators that DHH children may face within the environment of their immediate family. For example, if negative attitudes are detected in parents, then it may be necessary for professionals working with these parents to address attitudes as part of their intervention. Rosenbaum (2007) suggests that environmental factors are the section of the ICF-CY that professionals consider least when working with children with disabilities and their families. When working with children and their families, professionals need to recognize and address barriers within the child’s environment, which may hinder the child’s participation and development (Rosenbaum, 2007).
Limitations

The ODP scale provided information regarding the attitudes about DHH people; however, it was of limited usefulness as a research tool to investigate the attitudes of parents of DHH children. The strong positive skew in parents’ responses decreased the sensitivity of the ODP scale and it had little discriminatory power. The poor additivity of items meant that the ODP total score did not have an interpretable relationship with its items and analyses to determine the parent and child characteristics associated with more and less positive attitudes were not able to be conducted.

As a research tool, the ODP scale may be of limited value with this population beyond describing responses to individual statements about the capabilities of DHH adults. Although it was not within the scope of this investigation to identify the true, underlying attitudes held by parents, the ODP, like many measures of attitude, is only able to measure participant responses in terms of the attitudes that they are willing to convey. This makes it susceptible to biases such as social desirability (unintentionally over-estimating positive attitudes and under-estimating negative attitudes) and prestige bias (intentionally misrepresenting attitudes to make a more positive appearance) (Streiner & Norman, 1995). Further, in terms of positive and negatively worded statements end aversion bias (avoiding extreme categories) may have had a differential impact leading to a positive skew effect (Streiner & Norman, 1995). Any or all of these biases may have lead to parents portraying their attitudes to be more positive than they actually were.

Future Research

Further research is needed to better understand the results of this study and their impact. First, the differences reported between the attitudes of parents of DHH children in this study and the students in the Berkay et al. (1994b) study may come from several sources. To this end, the ODP scale needs to be used with a more appropriate comparison group to
understand how the responses of parents in this study differ from the norm. An appropriate comparison group may be Australian parents of similarly aged children who do not have a DHH child or any other disability. Such a comparison would minimize the impact of factors such as age, cultural experiences, and exposure to people with disability, hearing loss and sign language through the media, as well as the time that has passed between the development of the ODP and the current time.

Second, use of other scales in conjunction with the ODP scale to measure the attitudes of parents of DHH children may assist in validating the results of the current study, and/or to identify a measure that may be more appropriate for research use with this population. This may require the development of a new measure, or refinement of the ODP, so that it is sensitive and specific enough to discriminate responses in this skewed population. A scale with good additivity and a unimodal distribution would allow statistical investigation of characteristics associated with more and less positive attitudes for parents of DHH children. Such a scale could provide better and targeted education to both parents of DHH children and the wider community that could dispel myths and inaccurate expectations of the capabilities of DHH adults.

Finally, further investigation of the ODP scale is required to explore and understand the factor structure and the impact of the item wording on the scale as a whole. Factor analysis of parents’ responses in this study did not yield a unifactorial model. Some items showed negative correlations to either scale items or to the total ODP scale score. Until the reasons for this are resolved, confirmatory factor analysis cannot be undertaken to verify the model presented by the ODP scale. Within this study, Exploratory Factor Analysis yielded two factors, one composed entirely of positively worded items and one composed entirely of negatively worded items. This suggests that another underlying factor is involved which is
differentially acting on some items but not others, for example, bias effects such as positive skew (Streiner & Norman, 1995).

Endnotes

1 Within this paper the convention of using uppercase Deaf to refer to the Deaf community and people who identify themselves as members of the Deaf community will be followed. Lowercase deaf is used to refer to people who do not sign and identify themselves as having a hearing loss (as described by Napier, 2002).

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