Children with Cochlear Implants: Educational Placement and School Adjustment

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Abstract

To investigate the educational placement of children with cochlear implants and to study the adaptation level of these children and relevant influencing factors. Twenty children with cochlear implants were randomly selected and their parents and teachers were interviewed by telephone. The educational placement situation and the influencing factors on the adaptability of children with cochlear implants were studied through archival analysis, field observation and recording and in-depth interview. The child characteristics, acceptance of schools and teachers, family expectation, parents' communication had significant effects on the educational placement of children with cochlear implants. Results also indicated various sources of influence on school adjustment of these children after moving to educational placement, associated with the child, with the placements, with the families, and with other aspects. The educational placement shall be provided based on the characteristics of children and on the premise of meeting the unique educational needs of children, thus further providing the educational support for children with cochlear implants.

Key words: Cochlear implants, educational placement, school adjustment, influencing factors

Introduction

Chinese domestic cochlear products came to market in 2011, which means that more people in need can offer cochlear implants by themselves or their families in China. Loosening cochlear indications in recent years, number of cochlear implants increased annually (Liu Jianju et al., 2012), more and more children implanted younger. It is blindingly obvious for all to see a large number of children with cochlear implants will face problem of educational placement. Though a variety of recent domestic studies have done in domains of cochlear effect, speech perception and language development, academic achievement etc., studies of educational placement are relatively rare.

Some foreign studies (e. g., Svirsky et al., 2004; Connor, 2006; Marschark et al., 2007) have shown that children with cochlear implants have demonstrated benefits to hearing, language, and speech from implants, leading to assumptions that early implantation and longer periods of implant should be associated with higher reading and academic achievement. Though studies by Archbold (Archbold et al., 2002) and Fortnum (Fortnum et al., 2002) confirmed the effect of cochlear implantation on education setting in favor of mainstream placements, noting that the shift in placement roughly equates the pupils with cochlear implants with severely deaf pupils of the same age, more school-aged deaf pupils with cochlear implants moved in the inverse direction over time (see Thoutenhoofd, 2006; Marschark et al., 2007). This article focuses on the implementation of the educational placement and school adjustment of children with cochlear implants. Considerations of methodological shortcomings in existing research as well as theoretical and practical questions yet to be addressed provide direction for future research.

1 Methodology

This study utilized data from multiple sources to gain a panoramic view of implementation of educational placement of children with cochlear implants. Telephone survey data were augmented by archival analysis of children and interviews of parents and teachers. A telephone survey protocol was developed to know (1) the impetus for the educational placement; (2) the process of their educational placement, including difficulties they encountered; and (3) whether a particular child had placement changes. The influencing factors on the adaptability of children with cochlear implants after moving to placements were studied through field observation and in-depth interview. During the in-depth interview, participants were asked to respond to a series of open-ended questions to describe children's school adjustment in their settings.

Twenty children with cochlear implants were randomly selected within Chengdu city, Sichuan province, China.

Table 1
Child participant demographics (N = 20)

No.	Genders	Age now	Age of implantation	Hearing status now (dB)	Placements
		(month/year)	(month/year)		
1	female	1/4	2/1	25	public kindergarten
2	male	2/4	3/1	20	public kindergarten
3	male	7/4	6/2	15	public kindergarten
4	male	9/4	0/2	20	private kindergarten
5	male	6/2	5/5	16	public kindergarten
6	5/5	8/5	2/1	70	kindergarten in special school
7	male	11/5	0/3	24	public kindergarten
8	male	3/7	3/3	35	moving to special school
9	female	2/8	2/3	25	regular school
10	female	4/8	4/3	50	special school
11	female	1/9	1/4	65	special school
12	male	9/9	9/5	50	special school
13	female	10/9	10/4	20	regular school
14	male	3/10	2/5	25	special school
15	male	1/11	1/6	20	regular school
16	female	5/11	5/6	35	moving to special school
17	female	6/11	6/6	14	regular school
18	male	11/11	9/6	25	special school
19	female	5/16	1/8	46	moving to special school
20	male	9/17	3/8	52	moving to special school

Note: Data were collected in October, 2012. Special school here means school for the deaf

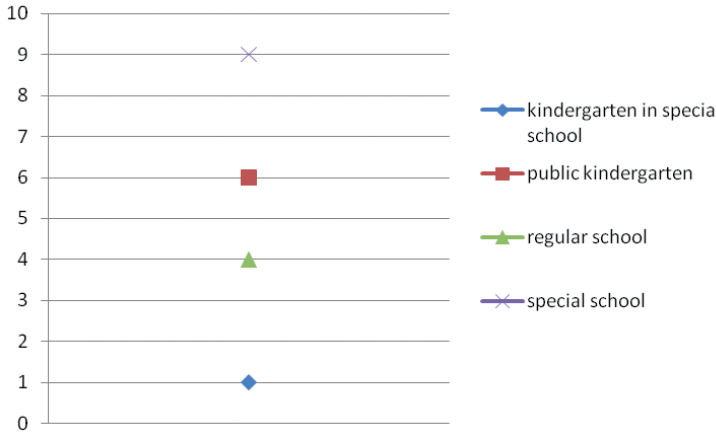
2 Results

2.1 Educational placement

Twenty participants were placed in four different settings (see Figure 1), including 1 in the kindergarten affiliated to special school and 9 in special school, 6 in public kindergarten for hearing students, and 4 in regular schools. In total, 35 percent of children (5 years to 7 years old) are accepting preschool education; 65 percent of children are accepting beyond preschool education, including 11 children (8 years to 13 years old)

placed in primary school and 2 children (16 years to 17 years old) in the same high school for special needs.

Figure 1
Types of educational placements



2.2 Factors that may affect educational placements

Table 2 indicates that individual characteristics are the main reasons for choosing types of educational placements for children with cochlear implants, including their hearing status, cochlear using level, mixed additional disabilities, personal experience as well as self-concept. When Luo chose junior high school, her experience in regular school came to her mind: the setting becomes more competitive, materials are more difficult, and expectations are higher. Her mom respected her decision and Luo finally moved to special school.

Look at the frequency given in descending order and hence the rate of answers to each coding items under every dimension is reduced gradually. Two other domains of influencing factors are closely related with family and educational placement itself. It was found that parents tend to choose regular schools and only use spoken language regardless of cochlear effect. What an important observation also suggests is that, for a number of children, communication varies at home, where signed communication model appears to be used much less. In fact, decision on communication influences a child's communication opportunities.

Table 2
Factors that may affect educational placements

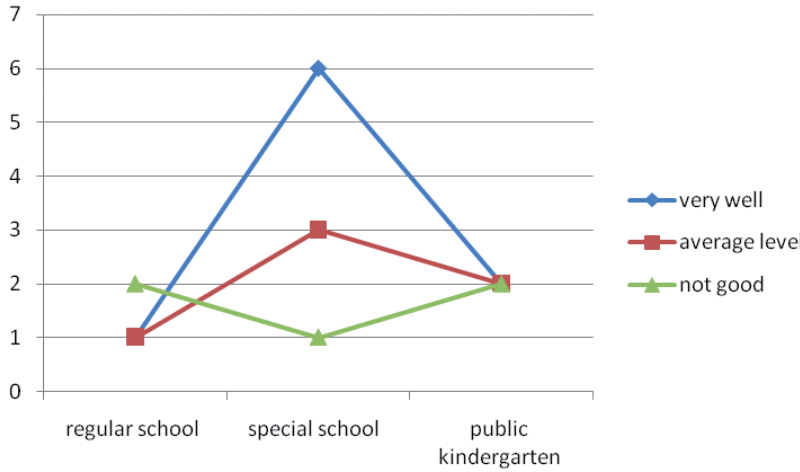
Dimension	Coding	Frequency	Percent
child characteristics	hearing status	17	85
	cochlear using level	14	70
	mixed additional disabilities	12	60
	personal experience	5	25
	self-concept	4	20
	total	52	
families	family expectation	16	80
	communication	8	40
	parents' hearing status	3	15
	total	27	
placements	school acceptance	13	65
	teachers' acceptance	7	35
	total	20	

2.3 School adjustment

After moving to placements, the school adjustment of children is different from each other according to implementation and assessment practices by observation and teacher interviews. All items and indicators intact are organized into four subscales: academic attainment, peer relationships, communication, and attitude towards learning.

Another notable finding in the data is that the adaptation level (see Figure 2) of the cochlear implants in special school is higher than other two types of placements. 6 children were reported to adapt themselves to special school very well. Only one child who newly moved to the special school was reported not well. The other 3 felt good in special school, reaching the average level. Just the reverse, only one child was reported very well in regular school, but two were reported not very well and were planning migration.

Figure 2
Children's adaption level in placement



2.4 Factors that may affect children's school adjustment

Children's school adjustment in educational placement appears to depend on a variety of factors. Table 3 indicates a four-dimensional framework of factors: child characteristics, placements, family factors and the others. Some characteristics mark children off from the others. The total of eleven coding items are integrated: hearing status, communication, language development, study pressure, academic attainment, peer relationship, learning quality, emotion expression, intelligence, personality, and self-efficacy.

Looking at the frequency given in descending order, social support from teachers and peers, and professionals has significant regression effect on children's school adjustment whatever in any kind of placements they are. Families and whether the child accepted early childhood education and even different lengths of time moving to placement influence the school adjustment, usually, children encounter more problems at the beginning. To get enough information in real time that would allow for interaction during the class, however, children's generally educational needs such as the support of a note taker or real-time captioning option are insufficient.

Parenting a child with cochlear implants is not easy, some parents face challenges to meet the complex needs of children with cochlear implants. Likewise, family expectation influence family involvement in habilitation process, the same as the family functioning, which also influences how families involve in children's studies.

Table 3
0Factors that may affect children's school adjustment

Dimension	Coding	Frequency	Percent
child characteristics	hearing status	19	95
	communication	17	85
	language development	12	60
	study pressure	12	60
	academic attainment	11	55
	peer relationship	9	45
	learning quality	7	35
	emotion expression	6	30
	intelligence	6	30
	personality	5	25
	self-efficacy	4	20
	total	108	
placements	oral/sign language teaching	15	75
	class size	13	65
	teachers' acceptance	9	45
	teachers' special education skills	7	35
	arrangements of seats	8	40
	courses program	6	30
	educational environment	5	25
	total	total	
families	communication	18	90
	family functioning	15	75
	parental stress	13	65
	family expectation	11	55
	total	57	
others	early childhood education	14	70
	social support for professionals	12	60
	length of time moving to placement	6	30
	total	32	

3 Discussion

Changes in placement

The children in this study are predominantly based in special schools, a total of four children had migration between different placements, all of them moved from regular

schools to special schools, without exception. One child migrated on second grade, one moved on third grade, and another two had migration after their first year in high school. It must also be borne in mind that the changes in placement that were counted imply different kinds of change for children in different situations.

Huge study pressure is the key reason for causing their migration. It's really hard for them to fulfil academic requirements for school or teachers. And then, as time goes on, lower self-efficacy and acceptance level by peers happened, and finally they gradually grew up lacking interest in learning.

As for children who had good school adjustment, teachers reported their cognition developed well, they're outgoing and usually have many good friends in school. Parents have great role in child's psychological development and involves actively in studies to cultivate their learning quality.

Difference between preschool and primary or secondary school placements

In sum, children's adaption level in preschool is the highest in placements, namely, children's school adjustment is the best in kindergarten other than in primary or secondary school.

In kindergarten, most of the time children learn by playing games, however, it's totally different when they start the primary school, their schoolbags are getting heavier, and courses are more difficult. They have to face challenges of university entrance examination or thinking about job-hunting in senior high school.

The child and family have significant influences both on placement and school adjustment

The child characteristics strongly influence educational placement, there are a total of 52 frequencies, all coding are (see Table 2): hearing status, cochlear using level, mixed additional disabilities, personal experience of placements, and self-concept. For the family, family expectation, parents' hearing status, and communication are influencing factors. Table 3 indicates child characteristics that may affect children's school adjustment, a total of eleven coding items are integrated: hearing status, communication, language development, study pressure, academic attainment, peer relationship, learning quality, emotion expression, intelligence, personality, and self-efficacy. Also, family expectation, parental stress, communication, and family functioning have significant influences on school adjustment.

Insufficient support from regular schools

What matters in education is not how well a child can hear but whether a child has unimpeded access to the social interactive process of teaching and learning. In contrast with special school for deaf students, a hypothesis exists in regular school is that only spoken language access to education. The best approach might be a bilingual strategy

that be provided for children with cochlear implants. If we truly want these children to succeed, we must confront environmental and methodological barriers to education and to appropriate educational assessment (Marschark et al., 2006).

School acceptance remains to be further implemented. Where there is indeed progression toward bilingual approaches to teaching and learning. Teachers in regular school whose special education skills should be improved by making the fullest use of special education center and resources bases.

Conclusions

The study was mainly based on interview and observation, a notable finding in the data is that seven kindergarten children were implanted at younger age (1.7 years on average) than the primary and secondary school children (5.1 years on average). Nevertheless, age at implantation has been seen as a significant predictor of later placements (Archbold et al., 1998). There is need to do more follow-up studies of those kindergarten children.

The educational placement shall be provided based on the characteristics of children and on the premise of meeting the unique educational needs of children, thus further providing the educational support for children with cochlear implants. Parents, educators, and professionals must work together to assist children in achieving their goals. Educational strategies for children with cochlear implants must take into consideration that these children will need direct instruction to develop communication competence.

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