

THE INFLUENCE OF PARENTS KNOWLEDGE AND HEALTH CARE ACCESS TO THE IDENTIFICATION OF CHILDREN WITH HEARING IMPAIRMENT

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Abstract: Early identification and access to quality habilitative services designed for children with hearing loss is the key to developing language and communication skills commensurate with the children's cognitive abilities. Early identification will provide the opportunity for improved outcomes for thousands of children with hearing loss. Objective: To review the role of parents knowledge and health care Access to the identification of children with hearing impairment. The study design was cross-sectional, with the sample were 45 parents of children at SLB – B Karnnamanohara Yogyakarta at the nursery-child and play group. Interviewer administered a questionnaire to the parents, for evaluations of their knowledge about deaf children and health care access. After obtained the data from the each variable, then test with chi-square statistic. The significant result shown at parental knowledge ($p=0,028$) and health care access ($p= 0,02$). This means that there were significant differences between parental knowledge about speech and language development and health care access to early detection of deafness in children. Parents knowledge and health care access influenced to the identification of children with hearing impairment.

Keywords: Parental knowledge, speech and language development, early detection, children with hearing loss, health care access

INTRODUCTION

Hearing loss is one of the most common congenital anomalies, occurring in approximately 2-4 infants per 1000.¹ Prior to implementation of universal newborn screening, testing was conducted only on infants who met the criteria of the high-risk register (HRR). It was found that the HRR was not enough, given that as many as 50% of infants born with hearing loss have no known risk factors.² Without screening for hearing impairment, children routinely remain undetected until about 3 years of age, which is a critical period for language learning.

Research has found that early identification hearing impairment and subsequent rapid intervention for these children can positively impact their language development.³ Early identification and intervention can prevent severe psychosocial, educational, and linguistic repercussions. Infants who are not identified before 6 months of age have delays in speech and language development. Intervention at or before 6 months of age allows a child with impaired hearing to develop normal speech and language, alongside his or her hearing peers.⁴ Hence Early Hearing Detection and Intervention Programs (EHDI) has become a standard practice in these countries.⁵ However the scenario is different in developing countries that do not have the prospect of screening or early detection either due to lack of professionals, resource constraints or delay in its detection.^{6,7}

In places such as India, China and South Africa where UNHS has not yet been strongly implemented, hearing loss is often detected as a consequence of parental concerns regarding delays in speech and language development. Inadequate data and lack of a national programme for the prevention of hearing impairment necessitate an organized plan to prevent and combat this problem in a structured fashion.⁸ The reasons of this high ratio of babies that were not detected are the follows: high ratio of consanguineous

marriages depending on the family structure of the region, low socioeconomic level of most of the families, high number of gestations and irregular follow-ups during gestation.⁹ A study conducted by Connolly et al in 2005 indicated that, as a result of the universal newborn hearing screening program in place from 1997-2001, the mean age of diagnosis was 3.9 months, with a mean age of intervention of 6.1 months.¹⁰

Hearing loss that may vary from slight to severe, leads to impairment of communication skills along with sensory deprivation and learning difficulties.¹¹ In order to prevent these developmental issues the hearing loss should be confirmed within three months after birth and hearing aids should be fitted within six months.^{12,13} Children with hearing loss typically experience significant delays in language development and academic achievement. Although the impact of a severe or profound hearing loss is well recognized, children with mild or moderate hearing loss also experience deficits in speech and language development. Studies have shown that hearing-impaired high school graduates have significantly lower average reading scores than those of their hearing peers, with deaf and hard-of-hearing students scoring at the fourth or fifth grade level.^{14,15} The substantial parental delay of suspicion and its subsequent delay in identification and the amplification of childhood deafness can be caused by lower knowledge and poor health care access.

RESEARCH METHOD

A cross-sectional study, consecutive sampling was done on 45 children with hearing impairment at the nursery-child and play group Karnamanohara school. The criteria inclusion for enrollment was bilateral sensory neural deafness who either warrant hearing aid fitting for amplification or those who were already fitted with hearing aid but having inconsistent use or found ineffective. Any significant motor, visual, sensory or genetic

disorders were excluded. Also those with surgically or medically correctable hearing deficits were not counted. A prior informed consent was sought before interviewer administered a questionnaire to the parents, for evaluations of their awareness and knowledge about speech and language development and health care access of the family. Descriptive statistics was used to summarize the data. The scores obtained in the knowledge questions and identification were cross-tabulated to obtain percentages. The difference in the knowledge and health access among the groups was determined using Chi-square or Fisher's exact test. $P < 0.05$ was considered to be statistically significant.

RESULTS AND ANALYSIS

There were 45 children diagnosed with sensory neural hearing loss at the nursery-child and play group Karnamanohara school, the age of detection was 27 children (60%) before 3 years old age and 18 children (40%) after 3 years old age. The parent knowledge evaluation are good that $\geq 50\%$ score on 24 parents and poor $< 50\%$ score on 21 parents. The health access good defined by having insurance for the family and the distance of health facility from home less than 5 kilometers (Table 1).

Tabel 1. Demographic data of deaf children

		N	%
Gender	Boy	12	27
	Girl	28	73
Identification age	< 3 yo	27	60
	≥ 3 yo	18	40
Parents Knowledge	Good	24	53
	Poor	21	47
Health access	Good	27	60
	Poor	18	40

When knowledge of families were analyzed in terms of parental knowledge about speech and language development: 24 (53%) had good knowledge scores, and 21 (%) had poor knowledge, having tested

with the chi-square test showed a significance value was $P = 0.028$, showed in table. 2

Tabel 2. Results of the parents knowledge and the identification age

	Good knowledge	Poor knowledge	P
Identification < 3 yo	18	9	0.028
Identification ≥ 3 yo	6	12	

When families were analyzed in terms of health coverage: 27 (%) had good health care access, and 18 (%) had poor health care, they were had no health coverages and

far from health facility, having tested with the chi-square test showed a significance value was $P = 0.02$, showed in table. 3

Tabel 3. Results of the health access and the identification age

	Good health access	Poor health access	P
Identification < 3 yo	20	4	0.02
Identification ≥ 3 yo	7	14	

In this study, parental knowledge about speech and language development and good health care access showed a positive influence toward early identification of children with hearing loss. Similar with Jeddi (2012) to minimize the age at cochlear implantation via increasing the level of public knowledge regarding hearing loss, cochlear implantation, and providing support services for families.¹⁶

Early identification and intervention can be influenced by many factors, and awareness among medical professional has been an important factor in this process. Medical professional are aware of the common risk factors causing congenital hearing loss and tests used for hearing assessment, prefer to refer suspicious cases to ENTs.¹⁷

Language deficits from undetected and untreated hearing loss infant can result in low level literacy, educational under-achievement, and poor socialization.⁴ Speech and language development of babies improves quickly in the first years, especially in the first months of life. A six-month-old baby shows more interest to speaking voice than the other sound sources. Thus early recognition of hearing loss influence by knowledge and attitude of parents/caregivers towards infant hearing loss and newborn hearing screening.¹⁸

EHDI has become a standard practice in many countries. However the scenario is different in developing countries that do not have the prospect of screening or early detection either due to lack of professionals, resource constraints or delay in its detection.¹ Pediatricians and other primary care providers have routinely utilized otoscopy, pneumatic otoscopy or tympanometry to diagnose common middle-ear disorders, but have had to rely on subjective methods such as observations of the child's behavioral response to sound (i.e., hand clapping or bell ringing) or parent perceptions of the child's behavior, to screen inner ear functioning of children 3 years of age. This study showed 18 deaf children (40%) detected the hearing loss

after 3 years old age it may be consequent on lack of parental knowledge about the handicap and its identification.

It was found that the family involvement and age of enrollment have significant influence in language development and hence the involvement of family has a positive outcome for the development of children with hearing impairment. Also early interventional strategies depend on the attitude of parents or care providers, their motivation, responsiveness to the child, and the social support, all of which can influence long term outcomes. It has also pointed out that the parents who become involved in intervention have been found to communicate better with their children and to contribute more to the child's progress than who do not participate in such programs. Hence effective intervention also should be family centered and parents need to consider from the time of amplification.⁴

Another reasons of delayed identification children hearing loss in this study was family social-economic that poor health access, its because National health systems in most developing countries are too weak to bear the added burden without external technical and financial support to implement national programme for early detection and intervention of childhood hearing loss consistent with and necessary for the existing campaigns of the World bank, UNICEF and UNESCO.¹⁹

CONCLUSION

The delay of identification childhood deafness and relatively high prevalence of hearing impairment indicate that the attainable realistic goal of EHDI has not yet been achieved. It may be consequent on lack of parental knowledge about the handicap and its identification and poor health access.

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