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Comparison of third-party disability between normal hearing siblings of children using hearing aids and those using cochlear implants

Abstract

Purpose: Historically, research tends to focus on the experiences of deaf children and the difficulties faced, as well as the difficulties their parents endure. Less attention has been focused on siblings of children with hearing impairment (CWHI). This study aimed to compare the Third-Party Disability between normal hearing siblings of children using hearing aids (HAs) with those using cochlear implants (CI). The objective was to develop International Classification of Functioning, Disability and Health (ICF) based-tools across different domains and categories that describe third-party disability in siblings of children with hearing impairment.

Method: 45 Normal Hearing Older Siblings (NHOS) from the two groups of children with hearing impairment using HAs and CI participated in the study. A tool was developed and mapped onto ICF components of Activities and Participation and Environmental factors. The developed tool consisting of 43-items across six-domains was administered through interviews, independent of the sibling. Frequency distribution and descriptive statistics were obtained. Shapiro-Wilk test was performed to assess normality of the distribution. Mann Whitney U test was administered to compare the domain-wise distributions for the two groups.

Results: NHOS of CWHI using HAs perceive greater third-party disability as compared to the NHOS of CWHI using unilateral CI across all the six domains included in the study. The differences were striking in the domain of communication, interpersonal interaction and relationship, support and relationship. There were differences across the other three domains which were not found to be statistically significant.

Conclusion: Hearing loss is a disabling condition that not only effects the individual, but is an experience shared by immediate family members including siblings. The extent of third-party disability in NHOS is influenced by the hearing device. This study has provided insights into the difficulties faced by normal hearing siblings of children with hearing impairment.

Implication: Utilization of an ICF-based tool has provided an idea about the specific domains(s) in which they perceive maximum difficulties, which will help clinicians counsel parents, focusing not only on the needs and issues of the CWHI but also the hearing siblings.

Keywords: children with hearing aids, children with cochlear implants, normal hearing siblings

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Abbreviations: ICF, International classification of functioning, disability and health; NHOS, normal hearing older sibling(s); HAs, hearing aids; CI, cochlear implant; CWHI, children with hearing impairment

Introduction

The relationship between siblings often facilitates the development of strong emotional bonds. This bond between siblings is often influenced by factors such as birth order, personality, parental treatment, personal experiences and more. Sibling interactions generally facilitate the formation of the strongest and closest relationships within any core family system, as they allow siblings to share and express ideas and feelings through experiences of loyalty, support and rivalry, provide opportunities to learn crucial social, emotional, cognitive and communicative skills and structure and a child's first social network.[1–3] When a child presents with a disability, differences between siblings could be heightened and atypical sibling relationships may develop.[4]

Hearing disability interacts with language vocabulary, information processing, psychology, emotional, intellectual and cognitive development and more. As such, hearing loss often results in less than typical interaction between siblings and may cause detrimental effects on sibling relationships. Siblings of children with disability sometimes experience guilt, emotional stress, anxiety, and sometimes they believe they have little opportunity to have their concerns heard.[5] Jalvia[6] indicated the need for family-based and direct sibling intervention to provide siblings appropriate ways to discuss their feelings, which may prove to be valuable. *Hansen and colleagues*[3] reported that NHOS were mostly positive towards involvement in play activities with their younger sibling with a disability but were less positive towards communication participation and least positive about participation in interpersonal relationships.

According to Carpenter[7] when a child with a disability is introduced to a family, parental roles shift in order to nurture the child and address the disability. The lines of communication, which are essential to a healthy relationship, may be severely impaired. Farber et al.[8] and

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Fowle[9] reported that children with disabled siblings may develop behavioural problems from "role strain", while Seligman[10] states that the 'parent-like' role often imposed upon the siblings may be a burden that they are unprepared for both physically and emotionally. Bat-Chava & Martin[11] investigated birth order effects on social skills between deaf and hearing siblings and reported sibling relationships were more positive when the child who is deaf was the older sibling.

Third party disability occurs when the third party is a significant other (SO) who does not have a disability (i.e., hearing impairment) themselves, but experiences activity limitations and participation restrictions as a result of their family member's disability.[12–14] Third-party disability was identified as a direction for future development in the International Classification of Functioning, Disability and Health (ICF) by the World Health Organization in 2001.[15] ICF explores the impacts of hearing loss on all facets of a person's life.[13]

Banik[16] conducted a study of aphasics' family to delineate the third-party disability in family members of persons with aphasia. Five domains related to activity and participation and one domain related to environmental factors was found appropriate to assess the profile of aphasics. Through this study, activity limitation and participation restriction in ICF was linked to domains including domestic life, self-care, interpersonal interactions & relationship, social and community life, and communication. Components of environmental factors includes attitude and emotions of family members of persons having aphasia. The problems faced by family members were quantified through the ICF. Nandurkar and Shende[17] conducted a study that compared the measures of third party disability in spouses of elderly individuals with different degrees of hearing loss using the Significant Other Scale for Hearing Disability (SOS-HEAR). Findings revealed statistically significant differences in the scores of third party disability across all sub-scales of SOS-HEAR between spouses of elderly persons with moderate and severe hearing loss.

Improvement in hearing with hearing devices positively influences not only speech and language outcomes but also self-esteem, emotional, social and psycho-social development as well as educational and vocational outcomes. This overall improvement enhances the quality of life (QOL) of children with hearing disability and improves the QOL of the immediate family members (parents and siblings). Research studies[18,19] have shown variable outcomes from conventional hearing aids and cochlear implants (CIs). Some studies[20] have shown essential benefit in terms of spoken language, psychosocial functioning, cognitive development, which indicates gains made via CIs may be greater than gains made for HAs. Other studies have reported improvement in speech recognition score among paediatric CI recipients did not correlate with improvement in the quality of life of those same children.[21,22]

Hearing siblings' personalities, experiences, temperament, birth order and more shape the way they perceive and interact with their environment, and their immediate family has the greatest influence during their developing years. Given the potential influence that a typically developing sibling has towards their sibling with a disability regarding functional outcomes, it is necessary that these attitudes be investigated.[23–25]

Literature[11,26–29] suggests that typically developing siblings often feel inadequately supported and excluded from participating with the sibling who has a disability, resulting in atypical family interaction and participation. The current study was undertaken to obtain and compare measures of Third-Party Disability across domains between NHOS of children using HAs with those using CIs. This study explored siblings' perspectives and experiences of being an NHOS of a child with hearing impairment in a scenario where siblings are often overlooked after a child with disability is introduced in the family system.

Material and methods

Participants

This study received approval from the Ethics Committee of AYJNISHD, Mumbai. The participants in the study were NHOS of children with hearing impairment. Participants fulfilling the inclusion criteria were identified from those visiting the clinic for various services, schools for CWHI, hospitals, other audiology clinics in the city. The inclusion criteria for participants were as follows:

a) Biological older siblings of hearing impaired child (in case of more than one older hearing siblings, the oldest sibling was considered)

b) Normal Hearing and age appropriate communication skills were ascertained by detailed history (parents report) revealed via the C.H.I.L.D (Children's Home Inventory for Listening Difficulties)

c) Age between 12 to 16 years

d) The age difference between CWHI and the NHOS was limited to not more than 5 years

e) Only one sibling with pre-lingual, bilateral severe to profound hearing loss without any other associated impairments

f) No other sibling with any sensory, motor or neurological impairment

g) Able to understand the instructions on the tool.

h) The sibling with HI uses binaural digital BTE hearing aids or unilateral CI.

A total of 45 NHOS of CWHI using either hearing aids or a cochlear implant were included in the study. Based on the type of device used by CWHI, participants (NHOS) were divided into two groups. Group A consisted of 21 normal hearing siblings of children using HAs and Group B consisted of 24 normal hearing siblings of children using a unilateral CI. The demographics of CWHI and their NHOS are shown in Table 1.

Tool

Components and domains of the ICF and existing ICF-based tools measuring third-party disability were reviewed. A measurement tool was developed based on the ICF framework to study third-party disability in normal hearing siblings across multiple domains within activities and participation and environmental factors. Five ASLPs experienced with ICF and third-party disability concepts reviewed and approved the developed tool and it translated into Marathi and Hindi using standard translations procedures and protocols.

The final reviewed and approved tool addressed 6 domains:

1-Communication, 2-Interpersonal Interaction and Relationship, 3- Education, 4-Attitude, 5-Community and Social Life, 6-Support and Relationships. The 6 domains are assessed based on 43 statements with a 5-point response scale ranging from "Complete problem" rated as 4 to "no problem" rated as 0. Higher ratings/scores suggestive of greater third-party disability.

Procedure

The developed tool was administered independently on the siblings. Initially, parents were contacted telephonically and the purpose of the study was explained to them. Details of their child with hearing impairment and the normal hearing siblings were obtained to assure appropriate inclusion and exclusion criteria. Normal Hearing Sibling who achieved an average response of 7-8 on C.H.I.L.D tool were included in the study. Assent and Consent was obtained from the participants and their parents. Responses of siblings were recorded using virtual mode (due to the pandemic) The tool was presented to the participants through Google forms at a time convenient to them, participants were verbally interviewed on the same through a video call ascertaining that parents are not guiding or influencing the children's responses to the items of the tool. Obtained data were tabulated and analyzed.

The frequency distribution for each option on the five-point rating scale from 'No Problem' ('0') to 'Complete Problem' ('4') was obtained (Figure 1a) (Figure 1b). For each of the six domains, the number of respondents providing a particular rating was calculated for each statement. Descriptive statistics of medians and percentiles were obtained for scores in each domain (Table 2). To assess whether the data obtained followed the normal distribution or not, Shapiro-Wilk test was performed for each of the six domains for the two groups. Mann Whitney U test was administered to compare the domain-wise distributions for the two groups.

Table 1 Demographic details of participants

	Group A (Siblings of HA users)		Group B (Siblings of CI users)	
	CWHI	**NHOS**	**CWHI**	**NHOS**
	(Sev- Prof)	(N = 21)	(Sev-Prof)	(N = 24)
Age	8 to 12 years	12 to 16 years	7 to 13 years	12 to 16 years
	(Mean: 0.0476, SD:1.9098)	(Mean: 13.4047, SD: 1.4108)	(Mean: 9.8333, SD: 1.4793)	(Mean: 13.1875, SD: 1.0301)
Gender	Male: 6	Male: 9	Male: 10	Male: 14
	Female: 15	Female: 12	Female:14	Female: 10
Difference in Age	---	Mean: 3.45, SD: 0.9988	---	Mean: 3.43, SD: 1.0141
Hearing age	1.5 months to 9 years (Mean: 5.3666, SD: 2.5432)	---	1 year to 9 years (Mean: 5.1041, SD:1.8880)	---
No. of Siblings	Both older & younger sibling(s): 10 Only older sibling(s): 11	---	Both older & younger sibling(s): 7 Only older sibling(s): 17	---
Years of intervention taken	<1 year: 4 1-3years: 11 >3 years: 6	---	<1 year: 1 1-3 years: 18 >3 years: 5	---

Table 2 Descriptive statistics domain-wise for the two groups

	Group A					Group B				
	Min	**Max**	**Percentiles**			**Min**	**Max**	**Percentiles**		
			25th	**50th**	**75th**			**25th**	**50th**	**75th**
Domain 1: Communication	12	39	19	22	28	10	20	12	13	14
Domain 2: Interpersonal Interaction and Relationship	9	33	11	17	21	8	21	9	11	13
Domain 3: Education	1	10	3	4	6	2	12	3	3	4
Domain 4: Attitude	7	25	9	11	15	6	19	9	11	12
Domain 5: Community and Social Life	4	25	6	10	15	4	15	7	8.5	11
Domain 6: Support and Relationship	5	21	7	10	13	5	11	7	8	8
All Domain: Total Scores	49	152	58	77	87.5	42	85	50	56	60.7

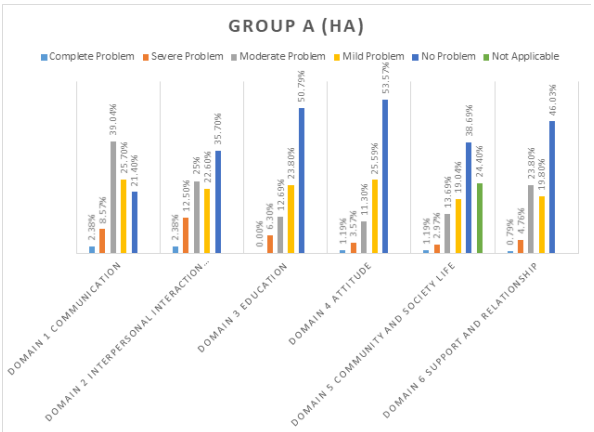

Figure 1(a) Domain frequency distribution of responses (in percentage).

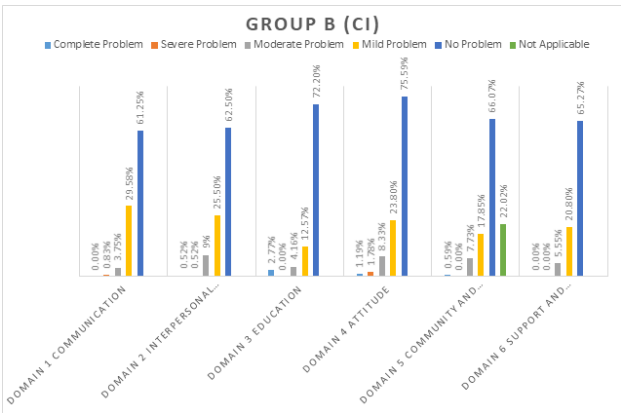

Figure 1(b) Domain frequency distribution of responses (in percentage).

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Results

A. Domain 1

Communication: The first domain evaluates modification in communication that takes place between NHOS and CWHI. The items include repeating themselves often, need to face their sibling with HI while talking, use of gestures and other non-verbal communication, answering phone calls for their sibling with HI, etc. The minimum and maximum obtainable score for this domain are 10 and 50 (respectively). The maximum obtained score for the domain was 39 for Group A and 20 for Group B. For Group A (HA) maximum frequency is seen for the response "moderate problem" (39%) suggesting that normal hearing siblings of HA group show moderate degree of communication difficulty with their sibling with HI. For Group B (CI) maximum frequency is seen for the response "no problem" (61%) suggesting that normal hearing siblings of CI group show no difficulty in communication with their sibling having HI. The two groups differ with respect to the median score. The median score for the HA group is higher than the median score for CI group. Since a higher score indicates greater difficulty, third-party disability in the domain of communication for Group A is greater than that for Group B. Mann-Whitney U value of 114.5 with obtained P value of .0018 indicates that there is significant difference between Group A and Group B (U= 30.5; Z= -5.02; P=<.05)

B. Domain 2

Interpersonal Interaction and Relationship: The second domain evaluates the bond shared between the child with hearing impairment and their normal hearing sibling. The items include not being able to share secrets, cannot participate in activities together, do not share close bond with sibling with hearing impairment, etc. The minimum and maximum obtainable score for this domain are 8 and 40 respectively. The maximum obtained score for the domain is 33 for Group A and 21 for Group B. Maximum frequency is seen for the response "No problem" (35.7%) for Group A and (62.5%) for Group B suggesting that normal hearing siblings of both the groups face no difficulty to perpetuate interpersonal bonding with their sibling with HI. The two groups differ with respect to median score. The median score for HA group is higher than the median score for CI group. Since a higher score indicates more problem, third-party disability in the domain of interpersonal interaction and relationship for Group A is greater than that for Group B. Mann-Whitney U value of 114.5 with obtained P value of .0018 indicates that there is significant difference between Group A and Group B (U= 114.5; Z= -3.11, P= <.05).

C. Domain 3

Education: The third domain evaluates whether hearing impairment of one sibling could influence/impact academic attainments of the normal hearing sibling. The items discussed in this domain include the inability to concentrate on their own studies, often being asked to help the sibling with HI in academics, the inability to get enough help from their parents in their own studies. The minimum and maximum obtainable score for this domain are 3 and 15 respectively. The maximum obtained score for the domain is 10 for Group A and 12 for Group B. maximum frequency is seen for the response "No problem" (50.79%) for both Group A and (72.2%) Group B suggesting that normal hearing siblings of both the groups do not have much interference in their academics because of their sibling with HI. The median score for HA group is higher than the median score for CI group. Since a higher score indicates more problem, third-party disability in the domain of education for the Group A is greater than that for Group B. Mann- Whitney U value of 171.5 with obtained P value of .0687 indicates that there is no statistically significant difference between Group A and Group B (U= 171.5; Z= -1.82, P= >.05)

D. Domain 4

Attitude: This domain targets understanding the attitude of normal hearing older sibling towards their sibling with hearing impairment. The items included in this domain were related to attention from parents, higher expectations from parents as a normal hearing older sibling, compromise on needs and wants, getting irritated by the incorrect response from sibling with HI, responsibility to look after hearing devices, etc. The minimum and maximum obtainable score for this domain are 8 and 40 respectively. The maximum obtained score for the domain is 25 for Group A and 19 for Group B. Maximum frequency is seen for the response "No problem" (53.57%) for Group A and (75.59%) for Group B suggesting that normal hearing siblings of both the groups have positive attitude towards their sibling with HI. With respect to median score, the median score for HA group is almost same to the median score for CI group. This shows that both Group A and Group B have similar attitude towards their sibling with hearing impairment. Mann- Whitney U value of 220 with obtained P value of 0.4715 indicates that there is no significant difference between the two groups. (U= 220; Z= -0.71, P= >.05)

E. Domain 5

Community and social life: This domain aims to evaluate the influence of a hearing impaired child on their normal hearing sibling. The items included in this domain were feeling embarrassed in social gatherings, feeling awkward/upset by the way their sibling with HI speaks, avoid spending time with their friends, not able to engage in physical sports together, do not go to movies and theatres, etc. The minimum and maximum obtainable score for this domain are 6 and 30 respectively. The maximum obtained score for the domain is 25 for Group A and 15 for Group B. Maximum frequency is seen for the response "No problem" (38.69%) for Group A and (66.07%) for Group B suggesting that normal hearing siblings' community and social life is not affected because of their sibling with HI. It is observed that 41 (24.4%) of Group A and 37 (22.02%) of Group B participants report some statements were not applicable to them. The median score for HA group is almost same as the median score for CI group. Mann-Whitney U revealed no statistically significant difference between Group A and Group B (U= 206; Z= -1.03, P= >.05)

F. Domain 6

Support and Relationship: This domain focusses on the type of support provided to the sibling with hearing impairment by their normal hearing sibling. The items discussed in this domain include responsibility towards sibling with HI, needs to accompany everywhere with their siblings with HI, daily schedule, vacations and events are planned considering sibling with HI etc. The minimum and maximum obtainable score for this domain are 6 and 30 respectively. The maximum obtained score for the domain is 21 for Group A and 11 for Group B. Maximum frequency is seen for the response "No problem" (46.03%) for Group A and (65.27%) for Group B suggesting that both the group have supportive nature towards their hearing impaired sibling. The median score for HA group is higher than the median score for CI group. Since the higher ratings indicates more problem, third-party disability in the domain of support and relationship is greater for Group A than that of Group B. Group A has higher scores for rating ranging from moderate to complete problem as compared to Group B. The CI group has shown difficulty of not more than mild degree. This suggests that the normal hearing siblings

of CWHI using has shown greater third party disability as compared to the normal hearing siblings of CWHI using CI. Mann-Whitney U revealed statistically significant difference between Group A and Group B (U= 129; Z= -2.78, P = < .05)

All domains – total scores

Overall scores for each of the domains was obtained to compare measures of third-party disability across different domains in normal hearing siblings of children using hearing aids and cochlear implants. The minimum and maximum scores thus are '43' and '215' respectively. The maximum obtained score is 152 and 85 for Group A and Group B respectively. Frequency distribution of overall scores for all six domains demonstrate that maximum frequency is seen for the response of 'no problem' in both Group A (38.75%) and Group B (63.08%). The median total score for HA group is higher than the median total score for CI group. Since higher score indicates more problems, third-party disability for Group A is greater than that for Group B. Mann-Whitney U revealed a statistically significant difference between Group A and Group B (U= 96; Z= -3.53; P= <.05)

A. Domain 1

Communication: Receptive Communication is most often an auditory phenomenon. With a CI, children with HI develop better listening skills, better language skills, and good speech intelligibility. As such normal hearing siblings of children with CI resulting in development of good verbal communication skills and good speech intelligibility. As such normal hearing siblings of children with CI show less difficulty in communication compared to siblings of children with HAs. Shivprakash et al.[30] studied performance of children having severe to profound hearing loss using hearing aids and cochlear implant. The results demonstrated that implanted children comprehend and express language in much easier ways as compared to children with hearing aids. They also have reported that children with CI take less time to learn language as compared to the children with hearing aid. This supports the findings of the current study reporting less third-party disability for the domain in communication in normal hearing siblings of children with CI as compared to those with hearing aids.

B. Domain 2

Interpersonal Interaction and Relationship: 66% of normal hearing siblings of HA group have reported moderate to severe degree of difficulty to adapt their interaction according to the needs of their sibling with HI. On the contrary, 62% of the participants of CI group show mild problem in adapting their interaction while talking with their sibling with HI. 76% participants of HA group have reported that bonding between them could be much better if their sibling didn't have a hearing loss. On the contrary 33.33% of participants of CI group reported they would share the same bond whether or not their sibling had hearing loss. The results were consistent with a previous study.[31] reporting that siblings of CWHI using CIs have a caring attitude and would have the same attitude even if they didn't have hearing loss. Siblings devote 33% of their free time with each other; more than they spend with their friends, parents or teachers or by themselves. While living with a sibling with hearing impairment, difficulty in interactions with them definitely arises.[4,5,32,33] Interpersonal interaction is mainly based on communication, verbal communication plays an important role in any hearing family. Communication is an important variable, developed within relationships, which continually influences relationships and gets influenced by it. Inadequate language development and verbal communication skills can act as a communication barrier within the immediate environment involving family and siblings.

C. Domain 3

Education: Participants of both the groups have reported that their academic studies are not much affected due to their sibling with HI. Participants in younger age group (12-13 years) have reported they are often not asked to help their siblings with HI in their studies as parents themselves take care of overall academics of their child with HI. They added that their parents pay equal attention to their academics On the contrary participants of older age group (14-16 years) reported that although they are asked to help their sibling with HI in their academics, they don't consider it as a problem and take it as a responsibility of being an older sibling. Participants have added that they can manage their academics and do not require help from their parents. Hadjikakou et al.[34] in their study have reported that performance of normal hearing siblings in the subscale of scholastic competence, athletic competence and competence in linguistic subjects was found to be within normal range. They have also found in their study that social competence and psychological adjustment of hearing siblings was positively related to their scholastic competence.

D. Domain 4

Attitude: Normal hearing siblings of both groups have reported their parents pay equal attention. Older participants (aged 14-16 years) added that even if their parents are more concerned for their sibling with HI, it is not a problem for them as they understand that their sibling with HI may need or require greater support from parents. Participants of both Group A and Group B reported that parents have higher expectations and added that their parents have shared such expectations but they have never felt as problem. This may imply that although their parents are having such expectations from their normal hearing child, they are not imposing it as a burden on them. Some participants of the HA and CI group disclosed they get irritated and sometimes become angry by the wrong responses from their sibling with HI. Normal hearing siblings of both groups reported they do not feel compromised in their basic needs and wants. This may be due to the fact that since the researcher only had a one-time interaction with the participants, they may not have been comfortable in revealing everything in detail. Participants of both groups reported they have mild or no problem in looking after their sibling's hearing device. This shows a positive attitude of a normal hearing sibling towards their sibling with HI.

In this study, we found that normal hearing siblings have positive attitudes towards their sibling with HI. Moreover, these are more often well-adjusted families, when normal hearing siblings are not bogged down with the responsibility of the HI child. Either the parents are taking the responsibility or the children are so well-adjusted that the normal hearing child is doing it of their own will. Bat-Chava & Martin[11] in their study of sibling relationships of deaf children have reported that children's reaction to their brother's and sister's disability depends on their attitude and their level of communication with their parents. Lobato et al.[35] reported in their study that honest and open communication from parents and family promotes more healthy understanding among siblings than parents who communicate less openly.

E. Domain 5

Community and social life: Participants of both groups have reported they don't feel embarrassed if people are staring at their sibling with HI using HA or CI, instead they defend them in social circumstances. Participants of HA group have reported there is no difficulty in engaging with their sibling with HI in physical sports and activities. Participants of CI group have reported there is no as such

barrier to engage with their sibling with HI in physical sports and activities but regarding the hearing device. Few of the participants have reported that their sibling removes their device while involved in such activities. Normal hearing siblings have reported to have no difficulty in taking their sibling with HI along with them to meet their friends, for the majority of participants the statement was not applicable, as they often don't visit their friends. 76% of participants of the HA group have reported that they never went to theatres and therefore reported that the statement was not applicable to them. This may also be because most participants included in the study were in lower socio-economic strata. Participants of CI group reported they have no problem going to theaters and their sibling with HI can readily join them. However, there were 42% of the normal hearing siblings of CI group who reported that they rarely went to theatres. Ogden[36] reported that siblings have a sense of guilt, embarrassment and shame about introducing their sibling with hearing impairment to peers and others, especially during adolescence when peer status is given high value. Fillery[37] reported that participants felt that their parents obliged them to involve their sibling with HI during peer interaction. In western countries it is a common practice of parents letting their children explore, allowing them to go out and socialize more often as they believe in more holistic approach.[38] Such practice is not common in middle class Indian families. This corroborates the findings of the present study. In particular, in middle class Indian families, the trend of visiting friends and going to theatres is not common. Therefore, we may infer that the 'community and social life' of normal hearing sibling is not much influenced by sibling with HI in an Indian context.

F. Domain 6

Support and Relationship: Participants of both groups reported that they know the ways to support their siblings. Majority of the participants reported that daily activities, schedules and events are planned considering the normal hearing sibling and the sibling with HI. There was variability observed in the responses of participants who were the only siblings of the CWHI and the siblings with HI who have more than one normal hearing sibling. Participants who have multiple siblings reported that they often don't have to accompany with their sibling with HI, as there are other siblings who go along with them. The participants who were the only sibling of CWHI, reported it is difficult to always accompany them everywhere. This stands particularly true for HA group participants whose sibling with HI used hearing aids.

Wilson[31] reported a definite change in family dynamics when a CWHI is introduced in the family, but they are not seen as negatives. Family members including siblings work together to fulfill the needs of CWHI and relatively few events are considered difficult or perceived as a problem.

All domains – total scores: The difference between the two groups is primarily due to the domains of communication, interpersonal interaction and relationship and support and relationship. While there were differences across the other three domains, they were not statistically significant. This comparison of overall scores indicates that normal hearing siblings of CWHI using has shown greater third-party disability as compared to normal hearing siblings of CWHI using CIs. It is believed that the results of this study will encourage the speech language pathologist, audiologist, and other professionals working with CWHI to recognize the significant influence and impact that siblings with HI have in the lives of normal hearing sibling. Thus, rehabilitation and counselling should not only focus on CWHI but also address their siblings, if any, those are often overlooked in the Indian context.[39,40]

Conclusion

Normal hearing older siblings of children with HI using hearing aids or cochlear implants perceived difficulty across all six domains. The two groups differ in terms of severity of the difficulty perceived by them. Normal hearing older siblings of CWHI using HAs perceive greater third-party disability than normal hearing siblings of CWHI using a unilateral CI across all the six domains included in the study but the differences were more striking in the domains of communication, interpersonal interaction and relationship, & support and relationship. There was no statistical significant difference in third-party disability between normal hearing older sibling of CWHI using HAs and normal hearing older sibling of CWHI using a unilateral CI in the domains of education, attitude, & community and social life. Comparison of total scores of the two groups shows statistically significant difference which leads us to conclude that, 'there is significant difference between third-party disability of normal hearing older siblings of children using hearing aids and those using a cochlear implant.

This study has provided insights into the difficulties faced by normal hearing siblings of children with hearing impairment in our Indian scenario. Siblings who are seldom given importance play an influential role in the family dynamics. Siblings are a source of social learning. Therefore, it becomes extremely important to understand the perspective of and support the normal hearing siblings to cope with their sibling with hearing impairment. Utilization of this tool will help assess the normal hearing sibling's perspective towards the sibling with HI and thus will help in counseling the parents and siblings towards holistic rehabilitation of the child with hearing impairment.

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Conflicts of interest

No conflicts of interest.

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