

BEING ALL EARS: A SYSTEMIC PERSPECTIVE ON THE ROLE OF THE PSYCHOLOGIST IN COCHLEAR IMPLANTATION

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ABSTRACT

For those hearing-impaired individuals who do not derive any benefit from hearing amplification, cochlear implantation sometimes provides a useful alternative. Recently cochlear implant teams started to incorporate psychological services, mainly as a means to evaluate candidates as to their suitability to receive implants. This paper shows that cochlear implants can have serious and wide-ranging repercussions for the implantee and/or for the family, sometimes necessitating psychotherapeutic services. A case study is provided to illustrate the need for a much wider role for psychotherapeutic services and to also demonstrate how the adoption of a systems perspective can be of value to the therapeutic process.

Key words: Cochlear Implants, hearing loss, systemic perspective, case study, role of the psychologist/psychotherapist.

INTRODUCTION

Hearing loss is arguably one of the most devastating forms of sensory deprivation (Wagenfeld, 1987). Not only does hearing loss interfere with the ability to perceive sounds in the environment but, if present from birth to a significant degree, it also prevents the acquisition of speech and more importantly, language, unless treated actively and continuously.

While huge strides have been made in the treatment of various forms of hearing loss, there is an unfortunate group of patients who have a profound hearing loss and who derive minimal or no benefit from amplification. Research involving cochlear implants originated in an attempt to provide these patients with an alternative sensory device (Millar, Tong & Clark, 1984). Cochlear implants have been used to treat both adults and children with profound bilateral sensorineural hearing loss by hearing health professionals for more than a decade. The effectiveness of these devices varies and is dependent on a number of factors. Although the implant enables the hearing-impaired person to hear better, it does not cure the hearing impairment. The process of cochlear implantation is a complex one. Human qualities like emotions and expectations influence the process and can determine the success of the implant. Hence hearing and hearing impairment play a major role in the intrasystemic as well as the intersystemic functioning of a person. Advanced technology will no doubt lead to more and more cochlear implants, with younger and younger children as recipients. Promotion of optimum development of such children requires that cochlear implants be seen not as a single event but as an intervention that has developmental implications that unfolds over time.

The field of cochlear implants is relatively new and research has been conducted mainly in the areas of audiology, speech therapy and surgery. Very little work has been done on the psychology of cochlear implantation. Cochlear implant teams traditionally incorporated psychological services, but mainly to evaluate prospective implantees for the surgical procedure. It is the aim of this paper to show that cochlear implants can have wide ranging psychological and systemic implications necessitating psychotherapeutic interventions

going far beyond such prior evaluation of implant candidates. In doing so, the paper will adopt a systemic perspective to illustrate the role of the psychologist/psychotherapist within the cochlear implant team.

THE SYSTEMIC PERSPECTIVE

The systemic perspective refers to the cybernetic theory of systems that provides an abstract framework for the observation of human behaviour (Simon, Stierlin & Wynne, 1985). It holds that natural systems or groups or persons, such as an individual, family, or a larger social network, are always part of still larger systems. Systems also consist, of smaller systems called subsystems. Thus, any system containing an individual or group of individuals is simultaneously a whole unto itself and a part of a larger whole. Harvey (1989) illustrates this with the following example: Depending on our frame of reference, an individual can be viewed as a complete entity, as the sole object in our perceptual field, or as one part of a family; a family can be viewed as a complete entity, as part of a neighbourhood, or as part of an informal network system. There are thus many levels of organisation in human experience, from the subatomic particle and living cell, to complex organs and organ systems, to whole persons, to families, to communities, to cultures, and to larger societies. We speak of a hierarchy of biopsychosocial systems to refer to systems that are both a "whole" and a "part". According to Bronfenbrenner (1979) these differing system levels appear to be arranged hierarchically, with each level more complex than the one before and encompassing all those that come before it. He has depicted this hierarchy as a set of nested structures, like a set of Russian Matroschka dolls, each encompassing the other.

From the systemic perspective, an individual and his/her family are viewed as systems within a biopsychosocial hierarchy and the behaviour of these systems is described by tracking the changes that occur within that system and its subsystems, and the system as a larger whole.

Stated more technically, an individual and family, or family and informal network, are seen as systems of differing logical types within the biopsychosocial hierarchy (Keeney, 1983).

Consequently behaviour of any given system can only be properly understood by tracking changes that occur within that system and its subsystems and by tracking changes between that system and the larger whole. Thus, there is a need to “step back” and perceive all systems interacting with each other. The functioning of the larger system cannot be inferred by simply observing each of its members (subsystems) separately (atomism); the whole (gestalt) is qualitatively and “behaviourally” different from the sum of the system’s individual elements (Harvey, 1989). This wider framework views behaviour as inherently part of reciprocal, circular interplays between environmental conditions and intrapsychic processes. This circular causality (Hoffman, 1981) implies that environmental change leads to intrapsychic change that in turn, leads to environmental change. Circular causality is in contrast to a linear idea of causation, which focuses on one direction of

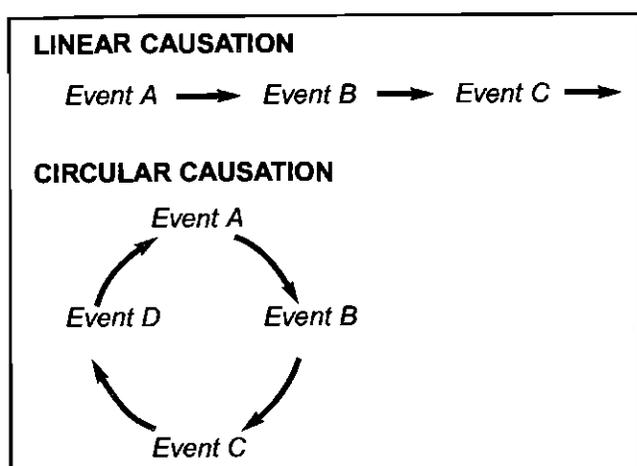


Figure 1: Linear causation and circular causation

change; either the environment causing individual change, or individual change causing environmental change (Harvey, 1989). See figure 1 for an illustration of the difference between linear and circular causality.

Organisms relate on inter- and intrasystemic levels and the hearing-impaired are no exception. If a person is diagnosed with a profound hearing loss or if a person received a cochlear implant, it will not only affect the diagnosed person, but also the family and friends who form part of the systems of the hearing-impaired person.

The following is a brief discussion of those intersystemic levels, or nested structures, which are most relevant to the study of hearing-impaired people (Harvey, 1989).

Family

The family is the main environment for the developing child, particularly the young child. The family’s behavioural patterns, conceptions of hearing loss, emotional responses to the loss, interactions with the child and so on, all exert powerful influences on development.

In a reciprocal manner, family development is powerfully influenced by the child and by the demands of raising a deaf child. In this sense, the child influences everything from the use of time and space to financial arrangements, travel patterns, patterns of communication among all family members, and even

the family’s image of itself — as well or not well, competent or incompetent, and nurturing or not nurturing. In this circular view of causation the hearing-impaired child is seen to influence, and simultaneously and reciprocally be influenced by parents, hearing siblings, grandparents, and extended family members.

Professional

As with disabled or chronically ill people, many hearing-impaired clients have extensive and often intense relationships with a number of professional systems, including educational, medical, audiological and other service agencies. For each ramification of hearing loss, there is often a corresponding professional system that can be more or less relevant at the different stages of the deaf client’s life. For example, physicians tend to be important early on, with school systems later becoming more influential forces. Harvey (1989) pointed out that professional systems and their relationships with family members may become patterned and rigid over time and thereby exert an ongoing influence on the family. For example if parents differ in their attitudes toward plans for their hearing-impaired child, a particular professional’s advice can tip the scales. Continued support for one parent’s position over that of the other can exacerbate a split between the parents. Alternately, continued support and guidance toward the child can undermine parental authority, as when a professional exclusively meets with the child, while covertly assuming that he or she does a better job at parenting than the child’s actual parents. The undermining of parental authority may also emerge in the relationship between schools, parents, and children when the school and parents compete about being in charge of the child (Bodner-Johnson, 1986). The interpersonal patterns that emerge between parents and professionals may become so powerful that the boundary between these two systems virtually disappears. Therapeutic efforts to help the hearing-impaired child and his or her family are frequently impossible unless the way that professional systems reinforce family patterns, and vice versa, are also addressed.

Informal

Informal networks made up of friends and acquaintances of both the child and parents can exert strong influences on family development and thereby on the development of the individual child. The support parents receive may play a role in how well they cope. Informal networks made up of friends and acquaintances of both the child and parents can exert strong influences on family development and thereby on the development of the individual child. The support parents receive may play a role in how well they cope with the extra demands a hearing-impaired child may place on them. These networks reinforce functional and family patterns and play an increasingly important role in the development of such individuals, particularly during adolescence, since this is the time the developing child associates with those who demonstrate the identity traits the child longs to emulate.

Cultural

The way a particular culture or subculture views being deaf through its political processes and the manner in which that

culture provides for such persons, exerts a major influence on the development of each child (Higgins, 1980; Lane, 1984; Sussman, 1976). With reference to deafness, Moores (1982) reported "most of deaf people's problems are caused by the dominant society. Deaf people have survived and endured in the face of an indifferent world that must be dealt with daily" (p. 141). People who have received cochlear implants, and parents who have children with implants can provide a vital support network for diverse human needs, such as exchange of information and social/emotional support.

Biological

Biological factors are important, including the etiology of the hearing loss, the age of onset, the degree of hearing loss, the rate of loss, prognosis for continued hearing loss or gain, the configuration of the audiogram across the speech range, and the amount of residual hearing. There may be related medical conditions in addition to hearing loss, depending on etiologic factors.

Psychological

The particular characteristics of an individual have a great influence on how he or she adapts to being hearing-impaired and on how the hearing loss is treated by his/her family, school and greater society. Although such children may well pass through some common and identifiable stages of development, each will do so in a unique manner coherent with his or her personality (Palmer, 1970).

INTERACTION OF THE SYSTEMIC LEVELS

All of these system levels comprise the context in which symptomatic behaviour is embedded. It is not enough to say that "it is a problem" or "it is an individual problem" for as was described earlier, a "whole" is simultaneously a "part". Consequently, it is necessary to thoroughly understand the interactional patterns within and between each system level in order to provide effective treatment. As Bateson (1971) stated, "if you want to understand some phenomenon or appearance, you must consider that phenomenon within the context of all completed circuits which are relevant to it" (p. 244). The systemic perspective or cybernetic theory offers the clinician a more precise map of the interrelationship of symptoms and context.

THE QUALITIES OF SYSTEMS

Stability and change

Cybernetics is based on the complementary relationship between stability and change (Keeney, 1983). Change is necessary for stability; stability is necessary for change. The theory posits that living systems maintain their form throughout processes of change. This ability of a system to remain stable in the context of change and to change in the context of stability is defined by the concepts known as morphostasis and morphogenesis. Morphostasis describes a system's tendency towards stability, a state of dynamic equilibrium. Morphogenesis refers to the system-enhancing behaviour that allows

for growth, creativity, innovation, and change, all of which are characteristic of functional systems (Becvar & Becvar, 1996). Keeney (1983) illustrated this process by describing a tightrope walker who makes frequent adjustments to achieve balance on the high wire. Without these constant yet almost imperceptible changes, the acrobat could not maintain stability on the wire; without this stability, the acrobat could not perform the pattern of changes. The complementary nature of change and stability is also central to evolutionary processes and to the development of new structures in systems. For example, in order to maintain stability, a family must constantly adjust to internal and external changes, such as the developmental changes of its members, diagnosed disabilities of a member, a change of jobs and other environmental changes. A family must constantly adjust to changes within and between the systems' levels of the biopsychosocial field in order to remain stable (Harvey, 1989).

Changes at any level influence the other levels as a partial function of temporal factors. This process is described by the concept of co-evolution. According to Bateson (1972), co-evolution begins when one system level adapts in reaction to disequilibrium at the same level or at another level. Internal and/or external forces may impose the disequilibrium. When a change at one system level affects, and is affected by changes at other levels, the systems are then said to co-evolve with each other. For example, a change in a child's physical symptoms (the biological level) is related to a change in how a child feels (the psychological level), which is related to a change in how the parents relate to each other (the family level), which is related to a change in how the professional helpers relate to the family and to each other (the professional level), and so forth. All of these levels are said to co-evolve with each other (Harvey, 1989).

Recursive cycle

Within cybernetic theory, the concept of the recursive cycle helps us to track the co-evolutionary relationships occurring among the multiple levels of a complex ecological field (Dym, 1987; Harvey & Dym, 1987, 1988). A recursive cycle is a sequence of interactions that, like Keeney's tightrope walker, constantly adjusts to new conditions by processing new information in order to maintain stability. At any given time, the clinician may focus on a specific system level to the temporary exclusion of other levels. For example, at one particular time, the clinician may perceive psychological and communication factors of the hearing loss as more important and thereby perceive other variables as less important, or vice versa (Harvey, 1989). The clinician not only continually shifts his or her perception within the ecological field, but also generates hypotheses about the relationships among several variables and system levels, which include the presenting problem. These relationships are conceptualised by the recursive cycle.

The systemic model posits that the behavioural and emotional characteristics that may be presented by many hearing-impaired clients have come about, are supported, and are reified as a function of the interaction within and between system levels across time. Furthermore, they are context based. The systemic perspective offers the clinician several choices about how, when, and where to intervene in the context of the biopsychosocial field. Phenomena at different levels of the

ecology involve biological, psychological, familial, informal network, professional, and cultural influences that co-evolve with each other. Therefore, modification at one level will influence, and be influenced by, all other levels to varying degrees. Intervention at one particular level may well exert a "ripple effect" across several other levels, and therefore may be the optimal point of intervention. Alternately, all the system levels may reinforce each other like glue to preclude effective intervention at any one level, and therefore may require simultaneous or sequential interventions at several levels.

THE ROLE OF THE PSYCHOLOGIST

Until recently, not many cochlear implant teams incorporated psychologists/psychotherapists as part of the team. If a psychologist was involved, it was mainly to evaluate and to determine if the cochlear implant candidate was psychologically balanced enough to be able to adjust to the implant and also to exclude any other potential psychopathology.

This role is a restricted one. The following case study is presented to illustrate that the role of the psychologist can be more comprehensive. In the case description, pseudonyms are used to protect the family's anonymity.

CASE STUDY: A hearing impaired family

The therapist first saw the B. family to evaluate 2-year-old Mary for a possible cochlear implant. The mother (Luísa), father (Gregory), brother (Sam, 6yrs) and maternal grandmother accompanied Mary. The following information was presented:

Luísa contracted rubella while she was pregnant with Mary. It was a difficult pregnancy and Mary was born by means of a caesarean section. Mary had a weak immune system and easily contracted illnesses. At the age of one month, the family suspected that Mary was hearing-impaired. They took her to a paediatrician and at the age of six months a serious sensorineural hearing loss was diagnosed. She received hearing aids at eight months. Because of financial reasons, Luísa had to work full-time. The maternal grandparents decided to move in with the family so that the grandmother could assist with Mary's rearing. At this stage Mary's brother, Sam, was six years of age.

The cochlear implant team approved the family and Mary, and she subsequently received an implant. Prior to the implant there was an article about Mary in the local newspaper and the family put a lot of energy and time into fundraising to be able to afford the cochlear implant.

A year later, Luísa contacted the therapist and an appointment was scheduled. This time, it was not Mary who was seen as the person with a problem, but her brother, Sam. Luísa, Gregory, Mary, Sam and the maternal grandmother were present at this interview. Nobody mentioned the grandfather. On inquiry from the therapist, the grandfather was described as a quiet person and not very involved with the rest of the family. Luísa voiced most of the complaints while the grandmother contributed some of the time. Gregory – Sam's father – was, as in the previous interview, quiet and did not contribute much. The family situation was as previously – the grandparents were living with the family, Luísa was in full-time occupation and Gregory had begun to work after hours to supplement the

family's income.

Complaints relating to Sam included the following: Sam experienced problems at school which was in contrast to the previous year, when he seemed to have fared quite well. According to his mother, Sam showed signs of disobedience and often cried when he felt that the adults did not want to help him or attend to him. He was willful and told lies. He often verbalised that his parents did not love him. His sister did extremely well with her implant and the grandmother referred to her as "brilliant" and a "star". During the session the two children were playing with toys that the therapist provided in the room. On several occasions Mary would take a specific toy from Sam. If he complained or tried to retrieve it, his mother or grandmother would scold him and tell him to be good to his sister because of her hearing impairment and therefore her lack of understanding at times.

Five monthly sessions of family therapy were scheduled. During the first two sessions, the therapist and the family tried to explore and describe the complexity of the problem. Sam was the identified patient and there were definite behaviour problems on his side. Mary, the cochlear implantee, was the obvious favourite within the family and ignored any efforts to discipline her. There was more than one mother figure as well as an absent father figure. A consistent daily routine seemed absent in the household. The boundaries within this family were diffuse. Involvement of the grandparents, and specifically the grandmother, seemed to complicate the boundaries between the mother and father, as well as between the parents and siblings. The way Luísa and her mother spoke to one another and talked about Gregory instead of with him, suggested a coalition between them. Such a coalition might have undermined Gregory's authority, which could explain his reserved manner. Although the grandfather was absent, the therapist suspected that a similar communication pattern existed between Luísa, and her mother and father. Of further interest, was the particular order in which the members took their seats during the initial sessions. The grandmother and Luísa sat next to each other. Between them and Gregory was an open space. The children moved in and out as they were playing on the side of the grandmother and Luísa.

The metaphor of a hearing-impaired family gradually took shape. All the attention and energy were focused on Mary, but Sam was not "heard". In a symbolic way, Sam was shouting for attention by creating all kinds of behaviour problems but nobody in the family seemed to "hear" him. His behaviour gave him some form of attention from the adults in his family and this supplied him with a certain identity. Furthermore, the voices of the male authority figures in the family seemed not to be heard either, while the voices of the mother, grandmother and most of all that of Mary, could be heard loudly and clearly.

Mary received constant attention, she received speech therapy, went for "MAPping" (the programming of the speech processor) sessions at the cochlear implant clinic, all the friends asked about her well-being and people could even read about her in the local newspaper. In addition, Sam possibly sensed that his father's authority was being undermined, which could perhaps account for his challenging behaviour towards authority – evident in his disobedience and wilfulness at home and at school. In a picture Sam was asked to draw of his family, the father figure was shown as big and prominent with an open

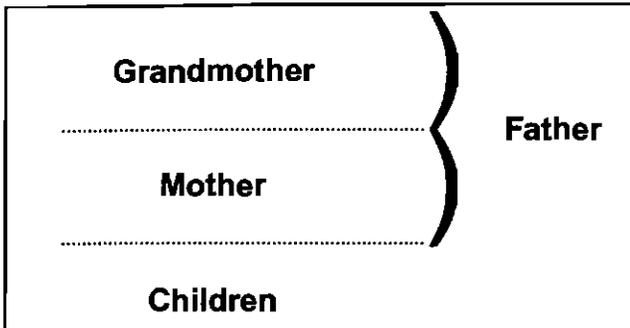


Figure 2: This map shows the coalition between the grandmother and mother against the father as well as the diffuse boundaries in the family.

mouth shouting swear words. This depiction was opposite to the impression the therapist had formed about the father during the sessions. Sam could have been expressing the father's underlying aggression or he could have been expressing his own aggression towards the absent father figure.

The therapist reframed the problem by composing a structural map of the family. The map is depicted in figure 2.

This is a three-generational family and the key issues were: who were the children's parents? Was the mother the grandmother's "child", and thus more of a peer and less of a parent to her own children? Were they competing for the role of primary parent to the children? Was there a parental coalition between grandmother and child to the detriment of the role of the father?

By the end of the second session, the therapist decided to intervene in a manner that would perturb the current family structure, to initiate change in the coalitions as described. This interaction involved asking Gregory to bring his wife, son and daughter to the next session and to leave the grandmother at home, seeing that she was already working so hard during the week. The therapist reframed it as allowing the grandmother time-out from the family and thereby opening the possibility that she could spend more time with her husband. In doing this, the message implied by the therapist was that Gregory was the head of the family and that a change in the definition of his role in the family was required. The assumption made by the therapist was that, should the father's "voice" again be "heard", it could contribute to a realignment of boundaries within the family. In a non-threatening way it also sent a message to the grandmother that her children were able to care for themselves. Luísa needed support to care for the children and the grandmother it seemed, bestowed the necessary love and warmth. This kind of necessary energy spent by the grandmother in support of the mother was not defined as negative for it did serve a purpose. Sam's presenting problems indicated that the time had come for the family to redefine their roles.

In the third session, Luísa reported that there was an improvement in Sam's schoolwork but that he still told lies. He also wanted to sleep between his mother and father and he did not want his sister, Mary, to attend the family therapy sessions. This was a good example where the change in the family's functioning was followed by stability, in the sense that, although Sam's behaviour changed, there were still "hearing"

problems in the family. It also showed the symptoms as expressions of ambivalence (Fourie, 2003). Sam "shouted" but in such a way that he was still not "heard".

The therapist requested from the parents their explanation for the behaviour of their son. This enquiry was a way of recognising the parents as the experts in the upbringing of their children. It also relieved the therapist of the expectation to "heal" the family. This process was also congruent with the structural viewpoint (Minuchin, 1974) of the need for the parents to form a strong subsystem.

In response to the therapist's question, Gregory realized that he might not have spent enough time with Sam. The opportunity for the therapist to discuss the "hearing impairment" in the family had opened up. It also presented an opportunity to gain clarity on how the parents perceived their different roles. Luísa responded by expressing the need to be more of a mother figure to the children, not only to nurture, but also to spend more fun time with them. She also said that she knew it would be better if her parents could live in their own place, instead of living with them in the same house and she was aware of the fact that she, her husband and two children did not spend enough time together as a family. She also mentioned that Gregory might sometimes feel overwhelmed by the presence of his mother-in-law, and she knew that sometimes she and her mother tended to make decisions without consulting him. Thus she indicated an awareness of the need for change concerning their situation, as well as a readiness to realign the boundaries within the family.

In responding to this, it was clear that Gregory was cautious not to hurt his wife's feelings. He realised that his mother-in-law was a big help to them in their situation but that he also had a need for them to spend time on their own. According to Luísa they had considered building a separate apartment on their premises for the grandparents. The grandparents could still take care of the children till five o'clock in the afternoon. When Luísa arrived home from work, the family could then spend time together without the grandparents. Luísa and Gregory continued to discuss the possibilities of being involved in more family activities without the grandparents. Gregory suggested activities where he could involve Sam, for example Sam could spend time with him some of the evenings while he was working. His evening job was fixing cars in his garage at home. The therapist continued to ask him about his own activities and interests and also about his perception of Sam and of Sam's interests. The intent was, once again, to confirm Gregory's important role as a father figure in Sam's life and as the person who had the knowledge to give his son what he needed.

The parents and the therapist then went on to explore other possibilities of spending time with Sam. Luísa suggested that she sit with Sam in the evenings while he took his bath. Thereafter she could also read him a bedtime story while Gregory spent time with Mary.

During the conversation, Sam stopped playing and came to sit on his father's lap. He expressed his love for cars and motorbikes, just like his father. Sam's non-verbal and verbal behaviour seemed to express a need to be closer to his father.

The therapist ended the session by commenting in a positive way on the parents' need to be more involved with their children and on the ways they already cared for the family.

Only Sam and Gregory attended the fourth session. Luísa had to work and was unable to attend. Gregory said he felt it was an opportunity for him and his son to be together and that had they left Mary at home with the grandmother. They were also planning to attend an air show after the session. The change in Gregory was remarkable. He talked much more than in any of the other sessions. Sam, too, was different. He seemed excited and energetic. He would alternate between playing with the toys and sitting on his father's lap. The therapist asked him to draw a picture of the family (the same task she gave him during the first session). He drew a picture of the family but with his grandmother and grandfather separate in the top part of the house.

Gregory told the therapist that they had started building an apartment for the in-laws and that they were all very excited about that. He also mentioned that he and Sam managed to spend more time together. Sam did not display the earlier wilful and disobedient behaviour. He still liked to tell fantasy stories – in which he played the main character – as if it were the truth.

The task of the therapist during this fourth session was mainly to confirm and reinforce the new behaviour patterns between father and son. This confirmation and reinforcement is part of structural family therapy, where praise is given for performing an action in order to help the family members feel confident in themselves and for them to realize that they are capable of doing what needs to be done. The therapist also gave Sam and Gregory an assignment to work on together in the therapy session.

In the follow-up session two months later a strong bond between Sam and Gregory was evident. Gregory was more outspoken than earlier. The family was still in the process of building an apartment for the grandparents. Luisa, Gregory, Sam and Mary attended this session. Gregory announced that the grandparents went to visit their other children in another city. Sam seemed to be happy and relaxed and his parents mentioned that they did not experience any of the earlier behaviour problems with him. The boundaries and the communication in the family, as illustrated in figure 3, seemed to be clear and an effective hierarchical structure seemed to be in place.

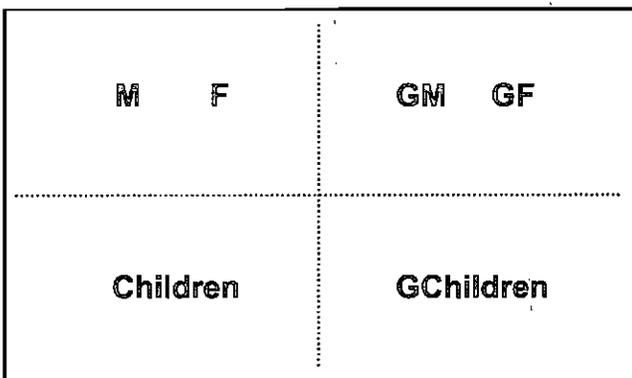


Figure 3: A structural map of the family after therapy. Mother (M), Father (F), Grandmother (GM), Grandfather (GF) and Grandchildren (GChildren). All individuals are equally respected and clear boundaries exist in the family.

DISCUSSION OF THE THERAPY

During the first two sessions it was clear that the diagnosis of deafness in the daughter affected the whole family. The parents went to extremes to try to restore her hearing through a cochlear implant. Possible guilt feelings manifested in the way they handled the other sibling, Sam. He had to accommodate the hearing impairment in his sister at the cost of his own needs. The grandmother involved Mary in all kinds of therapies in order for her to be “normal”. Luísa left more and more of her responsibilities to the grandmother. The family showed a tendency to over-protect the hearing-impaired child at the cost of the other sibling. The other members of the cochlear implant team perceived the implant as a huge success, as Mary was doing so well with the implant. They focused on the hearing and the performance of the little girl according to measurable standards. This improved hearing was the positive side – on the other hand, the cochlear implant and all the aspects surrounding it, contributed to changes in the family's overall situation. The presence of the grandparents and the nature of communication in the family complemented the specific situation in the family where the voice of Mary was heard but not the voice of Sam.

The above is an example of how the change in one member of the family, through a hearing impairment or a cochlear implant, had an effect on the rest of the family system. In this case, the behaviour of Sam could only be fully understood when the therapist “stepped back” and perceived all the subsystems interacting with each other. The circular interplay was clear: the diagnosis of hearing impairment and the cochlear implant in the one sibling affected the family, which impacted the behaviour of Sam, which in turn altered the family's behaviour. The intervention of other professionals, such as the speech therapists and audiologists, affected the family system and contributed to Sam's feelings of being ostracised. Even the informal networks, such as the friends and acquaintances, reinforced the focus of attention on the implanted child, thus in a way excluding the other sibling.

CONCLUSION

It is clear from this case description that cochlear implants can have a much wider impact than merely improving the hearing and the quality of life of the implantee. Occasionally, unforeseen and sometimes negative intra- and/or inter-systemic effects can and do come to the fore. A successful surgical implant and subsequent audiological adaptation do not necessarily constitute the end of the involvement of the cochlear implant team. Confining the role of the psychologist/ psychotherapist, as part of this team, to the prior evaluation of prospective implantees is therefore short sighted. Assessment and intervention can and should proceed throughout the period of post-implant rehabilitation. While we do not suggest a fixed way of working with cochlear implantees and their families, it is increasingly clear that such assessment and intervention should encompass as wide a perspective as possible. A systemic approach was followed and proved favourable.

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