

How do families perceive school and school life of a child with Cochlear Implant? A comparison between an Italian and a Swedish sample

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Abstract

Introduction. During the summer 2011 a study was undertaken in Italy and Sweden in families who had a son or a daughter at school with a Cochlear Implant (CI). CI-children are an emerging group in school and society today. Until recently studies have often compared CI-hearing with deafness but fortunately today CI-children and CI-hearing represent a new reality with sometimes surprising language acquisition. The main aim of the present study was to investigate CI-children in school, kind of CI and hearing devices, their well-being, friends, teachers availability, parents' perception of collaboration that exist between teachers and special staff, acoustics in classrooms and other areas.

Material and method. Data were collected using a multi-structured questionnaire of 27 items.

Results. Ninety-seven Swedish families and 115 Italian families answered and sent back the questionnaire. The percentage of respondents in both samples was around 50%.

The results show some similarities between the two countries and some interesting differences. The most striking difference between the Italian and the Swedish sample concerned the number of bilateral CI. In the Italian sample only two girls and four boys had bilateral implants, while in the Swedish sample 29 girls and 39 boys had bilateral implants.

Discussion. From the results of the present study it seems that the CI-children who participated in both Italy and Sweden are well adapted at school. To identify those children who are born deaf and could have their hearing restored by CI is so important.

Keywords

Cochlear Implant, child, family, school, school life, Italy, Sweden.

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Introduction

During the summer 2011 a study was undertaken in Italy and Sweden in families who had a son or a daughter at school with a Cochlear Implant (CI). Two family associations took the initiative and implemented the investigation. Both associations are engaged in increasing the quality of social conditions for children with CI. The Swedish association “Barnplantorna” (www.barnplantorna.se), has a long tradition being the most active group of parents to children with CI in Sweden. “Parlo io” (www.parloio.net) started in 2009 as an Italian friend-association contributing to CI-children’s wellbeing in Italy.

CI-children are an emerging group in school and society today. About 2 children per 1000 are born with hearing loss. A child’s ability to communicate is profoundly limited by a hearing loss therefore it is a wish to implant children at a very young age [1]. A cochlear implant is a biomedical device that is surgically implanted in the cochlea of a deaf child and provides direct stimulation to the auditory nerve and brain [2]. “Hearing” means stimulation of brain growth, especially the auditory brain. Once hearing loss is identified, hearing aids, cochlear implant and frequency-modulated (FM) systems must be provided [3]. The Universal Newborn Hearing Screening is fundamental to identify newborns with sensorineural deafness [4].

Early identification and early implantation facilitates the development of age equivalent speech and language for deaf children. The best language acquisition is seen in children who were implanted at a younger age and live in an environment rich in oral communication [5]. Rich stimulation gives rich outcome. It is important to underline the necessary and hard work that follows the operation of the implant itself involving not only speech therapists but also especially parents and other significant adults close to the child.

Until recently studies have often compared CI-hearing with deafness but fortunately today CI-children and CI-hearing represent a new reality with sometimes surprising language acquisition. Studies in which CI-children are compared with normal hearing peers have become more frequent. In fact

Percy Smith and collaborators in Denmark looked at life quality and self-esteem among children with CI. Children with cochlear implant score equal or better than their normal-hearing peers on matters of self-esteem and social well-being [6].

In a study undertaken in USA a quality-of-life questionnaire was used and completed by parents and children. The results indicated a quality of life similar to that of normal-hearing peers. Parents showed to be reliable reporters on their child’s quality of life score. Even in this study earlier implantation and longer CI use resulted in higher quality-of-life scores [7].

Studies regarding the school situation for CI-children would need more attention. Sue Archbold from the Ear Foundation in UK gives a valuable background to CI-children and education in her book from 2010 “Deaf education: Changed by Cochlear Implantation?” [8]. Certainly all children, even CI-children, learn and expand language skills above all at home within the context of family life [9]. Studies regarding school life and CI-children wasn’t found neither in Italy nor in Sweden. As the number of children with cochlear implants have increased it is of interest for the present investigation to look at the kind of school CI-children attend and if a similar/dissimilar situation could be found in the two countries considered. It seems that the majority of CI-children attend mainstream school.

The main aim of the present study was to investigate CI-children in school, kind of CI and hearing devices, their well-being, friends, teachers availability, parents’ perception of collaboration that exist between teachers and special staff, acoustics in classrooms and other areas.

Material and method

Data were collected using a multi-structured questionnaire of 27 items. Seven questions concerned social aspects (age, sex, school life, friends), 10 were hearing specific (CI, acoustics, assistant at school, rehabilitation programs) and ten questions regarded parents, teachers, information needs, and knowledge requested). Only a few questions were open ended and three used a Likkert scale. The questionnaire was originally written in Swedish and in a second moment translated into Italian by a professional translator (**Attach 1 and 2** examples from the questionnaires).

The data collection process in Sweden could use postal distribution of the questionnaire through the membership register at “Barnplantorna”, a nationwide association and the only one for children with CI. In

Italy no such membership register was available and the questionnaire was therefore distributed through associations of hard-of-hearing people in Milan, Rome (two groups), Naples and Catanzaro, during meetings at the associations. In both countries 220 questionnaires were distributed. All participants received a prepaid envelope for sending it back once completed to the responsible association.

Preliminary results

Ninety-seven Swedish families and 115 Italian families answered and sent back the questionnaire. The percentage of respondents in Italy was 52.3% and in Sweden 44.1% with no statistical difference (χ^2 2.95 – p 0.085).

The results show some similarities between the two countries and some interesting differences. Special schools or classes within mainstream schools for deaf children are more frequent in Sweden. In fact nearly half of the Swedish children in the sample attend special schools or special classes for hard-of-hearing students and fifty-three percentages attend a mainstream public school and a few private schools. In Italy the oral tradition in the education of deaf children has been particularly strong and since the seventies mainstream schools have opened up for children with different handicaps. Which may explain why nearly 100% of Italian participants attend mainstream schools and only two children attend special school for deaf children.

Participants in both samples had a similar age and gender-distribution, boys were slightly more represented and the largest age group (64%) were

between 6 and 12 yrs. of age (**Figure 1**). The most striking difference between the Italian and the Swedish sample concerned the number of bilateral CI. In the Italian sample only two of 52 girls (3.8%) and four of 63 boys (6.3%) had bilateral implants, while in the Swedish sample 29 of 44 girls (65.9%) and 39 of 53 boys (73.6%) had bilateral implants (**Figure 2**).

Among Italian participants 40% had their first implant before 3yrs of age while among the Swedish participants 70% had one implant before the age of 3yrs. Three years of age for the first CI surgery is internationally recognised as an upper limit for best results as to language acquisition. Several authors report that children who receive their implant at a very young age have shown dramatic results in restoring normal levels of auditory function [2, 3].

School life seem to be a positive experience for most children participating in the study, only 2 Italian children and 1 Swedish child answered they would have preferred not to go to school at all.

Friends are important and a sign of social integration. Most Italian, 101 children and 67 Swedish children report they have many friends outside school. Only 10 Italian and 26 Swedish children report they have few friends in school. The social character of Italians seems more active.

To improve CI-children's hearing capacity other devices (FM or digital system) are often recommended. In this study other devices were mostly used at school except for 8 Italian and 16 Swedish children.

Parents in Italy are almost all reporting that acoustics in the classroom are unsatisfying, while in Sweden the situation is the opposite (**Figure 3**). Not

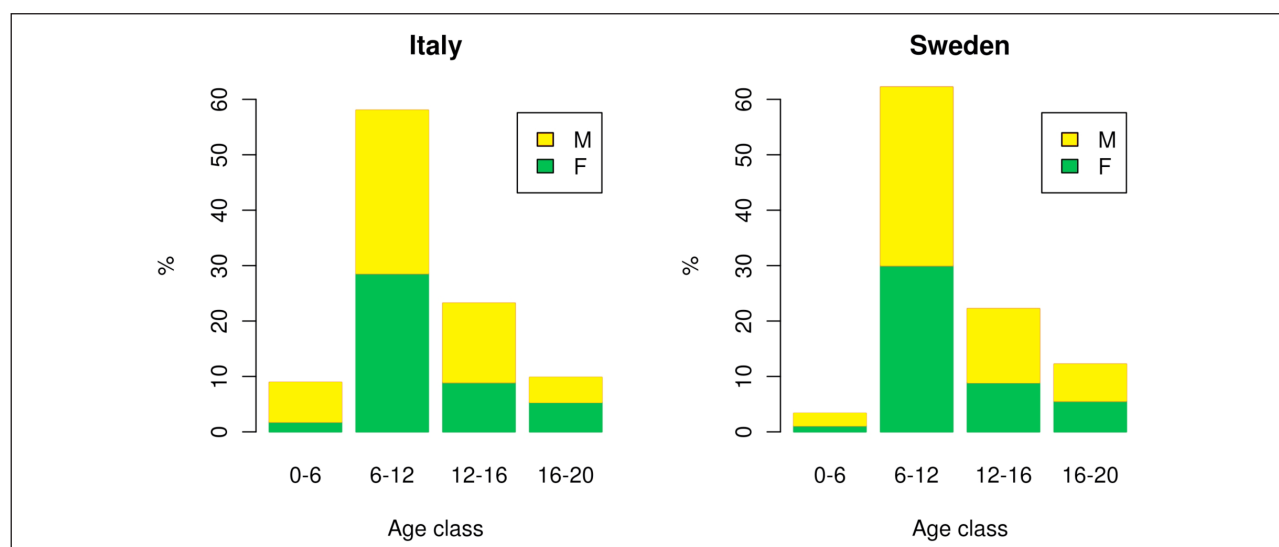


Figure 1. Age and Gender distribution of participants in the two countries.

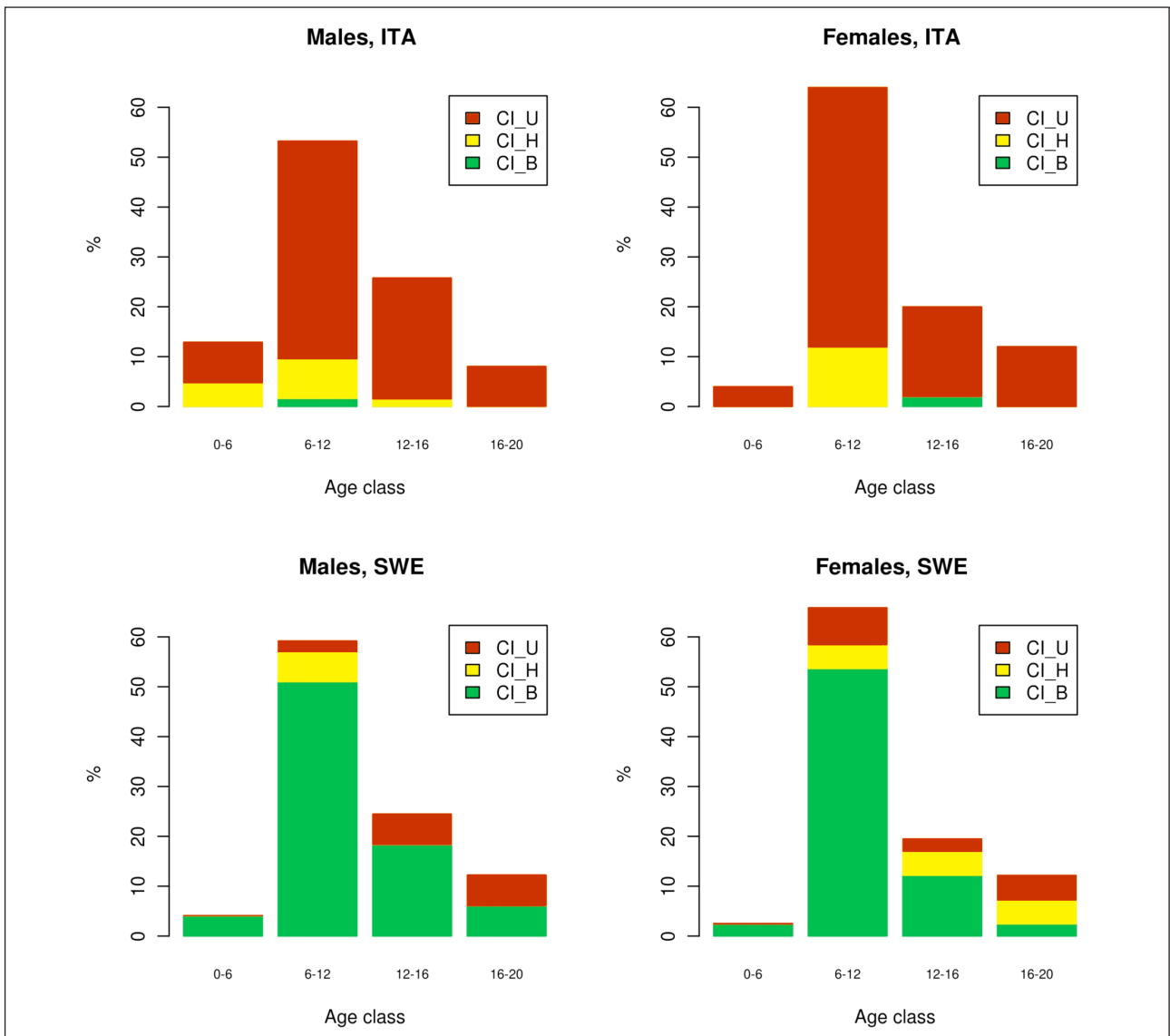


Figure 2. Unilateral cochlear implant (CI_U), bilateral (CI_B) or CI combined (CI_H) with hearing aid distributed according to age and gender in the two samples. ITA: Italy; SWE: Sweden.

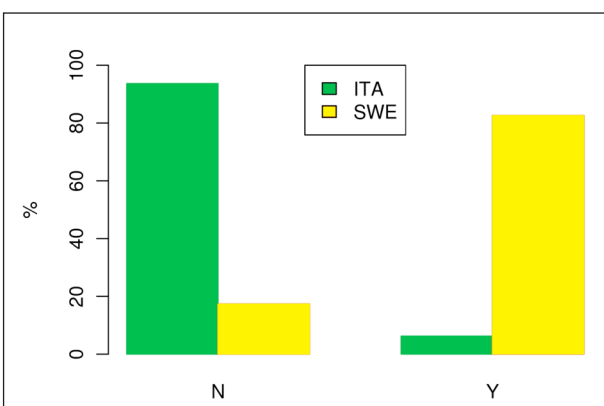


Figure 3. Classroom acoustics. Parents in Italy are almost all reporting that acoustics in the classroom are unsatisfying, while in Sweden the situation is the opposite. N: no, not satisfying; Y: yes, satisfying; ITA: Italy; SWE: Sweden.

all children have a rehabilitation program at school in fact 47 Italian parents and 32 Swedish say they have not.

All the same most parents both in Italy and in Sweden are satisfied or very satisfied with school. More than half of parents in both countries (60% of Italian and 70% of Swedish parents) report teachers have enough information about CI. They themselves though would like to have more information/knowledge especially about pedagogical methods but even about acoustics in different environments.

Discussion

From the results of the present study it seems that the CI-children who participated in both Italy

and Sweden are well adapted at school, appreciating school life and most of them have a considerable number of friends. Italian children reported more friends. Social capacities among Italians are generally well recognised. The study didn't include questions on cultural differences between the two samples analysed. But it is important to evaluate social aspects of life and as some studies have done the quality of life of these children [6].

The main differences regarded bilateral implants, children's age at first implant and perception of acoustics in classrooms. The effect of having one or two implants wasn't explored in this investigation, and no differences were registered considering children's wellbeing. During the last decade bilateral implants have become a routine in some countries. A binaural hearing gives a stereophonic hearing, a better auditory orientation especially in very loud surroundings. It also gives children a major security, if one implant suddenly get a technical problem the second implant acts as stand in [9]. Similarities between the two samples concerned the perception of school and teachers information regarding CI.

One important aspect that is stressed by all professionals involved in children's deafness is the age of the child when being implanted [2]. To identify those children who are born deaf and could have their hearing restored by cochlear implant is so important. And that's also why the Newborn Hearing Screening has to be universal. All newborns should be tested during the first week of life. Best results with in CI are related to early diagnosis and consequent earlier implantation. Universal screening needs a wide organisation to check every new-born child within a week from birthdate. However even in countries where screening is widespread, almost 30% of children needing CI are implanted later. Physicians have to improve diagnostic procedures.

Families are central especially to these children's quality of life and are important collaborators for

teachers and schools as well. A child with a cochlear implant and restored hearing, sometimes very well, still need a range of support to ensure full access to the curriculum [8].

Declaration of interest

The Authors declare that there is no conflict of interest.

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Attach 1.



23. Pensi che tuo figlio/a avrebbe bisogno di maggiore attenzione a scuola (nel cortile, a lezioni di musica, ginnastica/attività sportive, altre attività scolastiche...)?

.....

24. Pensi che gli insegnanti siano stati sufficientemente informati dell'impianto cocleare di tuo figlio/a e delle necessità uditive per l'apprendimento?

- si
- no
- non so

25. Quale informazione le manca che potrebbe essere utile fornire?

.....

26. Come è l'ambiente acustico a scuola, usa la scala per rispondere:

1 = pessimo

5 = ottimo

Aula:	1	2	3	4	5
Palestra:	1	2	3	4	5
Mensa:	1	2	3	4	5
Sala Musica :	1	2	3	4	5
Corridoi /altri spazi:	1	2	3	4	5

Attach 2.

23. Tycker du att ditt barn skulle behöva extra hänsyn/stöd vid något tillfälle?
(skolgården, musiklektioner, gymnastik, raster ..?)

24. Tycker du att ditt barns lärare har fått tillräcklig information om ditt barns CI och pedagogiska konsekvenser avseende ditt barns hörselnedsättning/dövhet?

- Ja
 Nej
 Vet ej

25. Om de saknar någon information vad skulle det vara?

26. Hur är den auditiva (ljud) miljön i skolan från en skala 1 till 5 där 1 innebär 'mycket dåligt' och 5 'mycket bra'

Klassrum

1 2 3 4 5

Gymnastiksal

1 2 3 4 5

Matsal

1 2 3 4 5

Musiksal

1 2 3 4 5

Kapprum/korridor

1 2 3 4 5

Barnplantorna

