

Adaptive Functioning in Students with Cochlear Implants Assessed in Spain through the Strengths and Difficulties Questionnaire

Contrast of opinions between the classroom teaching staff and the speech, language and hearing specialist staff

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Abstract

Cochlear implantation has become increasingly accepted as an option for early implantation in the deaf. The aim of this study was to compare the opinions of 250 classroom teachers and 200 speech, language and hearing specialist teachers regarding the behavior and emotions of the students with cochlear implants using the Strengths and Difficulties Questionnaire (SDQ), which is divided between 5 scales: a) emotional symptoms, b) conduct problems, c) prosocial behavior, d) peer relationship problems, and e) hyperactivity/inattention. The results have shown that there are important discrepancies between the two, both in the externalization of conduct problems and in prosocial behaviors, although there are notable coincidences related to attention factors and to the exceptional presence of emotional symptoms of these students in new situations.

Keywords: cochlear implant, emotions, prosocial behavior, social relationships

1. Introduction

Studies on children's mental health show that between 10% and 20% of Spanish children suffer from some type of mental disorder (Fonseca, Lemos, & Muñiz, 2011). A powerful and widely used screening tool for children's mental health is the Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997), which has demonstrated its psychometric properties and discriminative validity in different cultural contexts. In Spain, the SDQ has been validated on several occasions with a clinical population (Rodríguez, 2006a) as well as with a general population in the Canary Islands (Rodríguez, 2006b).

Behavioral and emotional problems affect, therefore, an important part of the child and adolescent population which must be considered, furthermore, within the socio-cultural context of each individual (Mata, Suárez, Torres, Carro, & Ortega, 2009).

Different studies reveal improvements in the functional and communication skills of the implanted (Rodríguez, Pérez-Jorge, Alegre, Leal, & Suárez, 2016; Bat-Chava, Martin, & Kosciw, 2005; Blamey, Barrey, Bow, Sarant, & Paatsch, 2001; Connor, Hieber, Arts, & Zwolan, 2000; Geers, Nicholas, & Sedey, 2003; Svirsky et al., 2000). A psycholinguistic profile of implanted children was designed within the study of Alegre, Rodríguez, Villar, Pérez-Jorge and Marrero (2014) which evidenced the positive effect of early implantation in language development in deaf children.

However, the success of the results following cochlear implantation is neither immediate nor assured (Geers, 2003). It is important to emphasize the significant variability of the results following implantation (Bat-Chava et al., 2005; Purdy, Chard, Moran, & Hodgson, 1995; Sach & Whynes, 2005; Spencer, 2004; Spencer & Marschark, 2003). In

fact, continuous efforts in rehabilitation are imperative following cochlear implantation to make sure that the procedure is effective (Christansen & Leigh, 2002).

Understanding that language is the main path for integrating information (Delgado, 2011; Jiménez, 2011) and, in turn, many of the norms and conducts of socialization, the communication difficulties present in children with hearing loss may be a barrier for acquiring the prosocial conducts and skills that enable integration in their contexts of reference, which are fundamentally hearing-based (Calderón & Greenberg, 2003; Schorr, 2005).

As stated by Bat-Chava and Deignan (2001), the parents of implanted children admit that following implantation there is an important improvement in their child's integration in his/her context of reference. However, in spite of these improvements, they also express that there are still some communication problems, particularly regarding those related to social interaction.

In this sense, the two reference contexts of the child (family and school) seem to agree that relation difficulties are due, in most cases, to a delay in the development of specific social and communication skills, such as comprehension problems or regarding the subtlety of nuances in social interactions. These difficulties create limitations in the child when establishing friendships with peers, as well as problems regarding his/her independence to participate in school and social life (Punch & Hyde, 2010).

Some studies, such as Quittner, Smith, Osberger, Mitchell and Katz (1994), Smith, Quittner, Osberger and Miyamoto (1998) and Yucel and Derim (2008), suggest that children with hearing loss find it difficult to remain attentive and are easily distracted and impulsive when requested to complete different tasks. These results are similar to those gathered by Horn, Davis, Pisoni and Miyamoto (2005) who carried out a study that aimed to analyze the development of attention skills in children with cochlear implants. They demonstrated that even though after the implantation process the children continued to present very poor results in the tasks aimed at evaluating their ability to sustain their attention, these results improved slightly after several years using the cochlear implant.

The ability of implanted children to communicate within their contexts of reference greatly affects the development of prosocial behaviors that would allow the child to form close social relationships with others (Stinson & Whitmire, 2000). Children with cochlear implants may experience difficulties in acquiring this type of behavior, particularly if it has been a late implantation, since this leads to a delay in the development of the necessary communication skills (Delgado, 2011; Jiménez, 2011; Rodríguez, 2013). As a consequence, many of the relationship difficulties experienced by implanted children within the school environment are due to their limited production of intelligible speeches as well as a limited understanding of the spoken messages they hear (Martín, Bat-Chava, Lalwani, & Waltzman, 2010; Rimmel & Peters, 2009; Schorr, Roth, & Fox, 2009).

The fear of mockery and laughter from their peers, their inability to participate accordingly in the conversations or debates that are generated in the classroom, or even, being underestimated by their peers (Punch & Hyde, 2010), tends to create in these children greater emotional imbalances (fear, anxiety, frustration), than in their hearing peers even though such levels usually decline after implantation, as pointed out by Ferginger, Holzinger, and Pollard (2012), Huber and Kipman (2011) and Theunissen, et al., (2012). As a consequence of this, and although it may seem that implantation favors a better integration within the school context, many students with cochlear implants reject interactions with their peers, even though they have their initial acceptance. This may be due to their inability to interact verbally at the same pace as their peers, which consequently limits opportunities to develop similar prosocial skills and behaviors (Dye & Hauser, 2014; Punch & Hyde, 2010).

Schorr (2005) stated that boys and girls between the ages of 5 and 9 experienced the same level of solitude as hearing children of the same age. In the case of children implanted between the ages of 9 and 14, low self-perception and exhibitions of solitude were greater to those of their hearing peers. These data highlight the importance of the benefits of early implantation in children (Francis, Koch, Wyatt, Niparko, 1999, Holman et al., 2013, Jimenez, 2011, Rodriguez, 2013).

On the other hand, the possible consequences derived from communication difficulties of children with cochlear implants and the possible effects on their development (Calderón & Greenberg, 2003; Quittner, Leibach, & Marciel, 2004; Stevenson, Kreppner, Pimperton et al., 2009), has led these authors to suggest that there are more behavioral problems in implanted students than in their hearing classmates (Anmyr, Larsson, Olsson, and Freijid, 2012; Worsfold & Kennedy, 2015; Vostanis, Hayes, Du Feu, & Warren, 1997).

This study aims to research the behavior and emotional aspects of the students with early implantations, as perceived by the classroom teachers and the speech, hearing and language specialist teachers using the SDQ. This questionnaire is a brief screening tool that assesses psychological problems in children and adolescents regarding

behavior, emotions and interpersonal interactions (Goodman, 1997), and which has been translated into more than 60 languages. Since its construction, a large number of researches have studied its psychometric properties gathering evidence on its reliability and validity (Rivera, 2013).

2. Method

2.1 Participants

The sample of this study consisted of 250 classroom teachers and 200 speech, language and hearing specialists (SLH) of children with early cochlear implants, aged between 4 and 16 and enrolled in schools of the Autonomous Community of the Canary Islands. The teachers were chosen because they taught the children involved. The identification data of the teacher sample can be seen in Table 1.

Table 1. The identification data of the teacher

	Classroom Teachers	SLH Specialists
Gender	Men: 28% Women: 72%	Men: 19% Women: 81%
Age	Mean: 50.3years Sd: 3.2	Mean: 46.5 years Sd: 2.3
Years of Experience	Mean: 10.2 years Sd: 2.6	Mean: 9.3 years Sd: 2.9

The mean chronological age of the implanted children on which teachers gave their opinion was 132.57 months (Sd=52.37) and in terms of educational level, 23% attended Pre-school, 43% Elementary School, 26% Middle School and 6% High School.

2.2 Materials

As mentioned above, in order to gather data on the opinion of staff regarding prosocial conduct and behavior of implanted students, we used the "Strengths and Difficulties Questionnaire (SDQ)" by Goodman (1997) in his version for teachers in the subscale applicable to the age range between 4 and 16. This test helps detect disruptive emotional conduct that can compromise the behavior of children from 3 to 16 years old. In short, it is used to analyze the emotional and behavioral adjustment of boys and girls, in our case, with cochlear implants.

The questionnaire consists of 25 items divided between 5 scales: a) emotional symptoms, b) conduct problems, c) prosocial behavior, d) peer relationship problems e) hyperactivity/inattention. Each subscale is assigned 5 items that are scored from 0 to 2, on a scale that is set as follows: False (0 points), Somewhat True (1 point) and Certainly True (2 points). For the case of items 7, 11, 14, 21 and 25 a reverse scoring scale is used.

2.3 Procedure

As a first step to gathering the data necessary for the study, an initial contact was made by phone with the different directors of the schools in which the implanted students were enrolled. Having received the pertinent authorizations, an informative letter was sent to the parents of the children with cochlear implant requesting authorization to allow both classroom and speech, language and hearing specialist teachers to respond to the questionnaire in relation to information regarding their child. Once these were obtained, the questionnaires were handed out to the different professionals in the schools.

2.4 Data Analysis

The SPSS statistical package (see 21) was used to analyze the frequency distribution of the teachers' evaluations on different aspects related to the conduct and attitudes of the implanted minors (descriptive analysis of the SDQ scale).

The Kappa index (Cohen, 1960) was calculated for each of the items in order to assess the degree to which teachers and SLH specialists agreed, as well as to determine the percentage of the agreement. In this way, it was determined, at a statistical level, whether teachers expressed agreement or not when assessing the conduct and attitude of students.

3. Results

To start with, we analyzed the discrepancy of opinions among staff on a descriptive level. In this way, and observing the percentage of answers of the teachers in the false category, differences were noticed regarding the

first 12 items (Table 2); it was observed that teachers hardly differed in their answers in the false category in relation to items 1, 2, 3, 5, 8, 10 and 12. However, items 4 and 9 showed a 10 % difference in answers within this category, so that the differences in opinion of the teaching staff were greater. Finally, in item 6 there was a 16% difference in opinion turning it into the item manifesting the most differences in opinion.

However, for items 7 and 11 the most significant differences were detected at the somewhat true and certainly true levels respectively, so that in these two cases there was a change in trend with respect to the rest of the items.

Table 2. Speech, language and hearing Specialists' and Classroom teachers' answers to the items

		SL H	Classroom Teachers	Difference in criteria
1 Considerate of other people's feelings	False	0.0%	3.3%	3.3%
	Somewhat True	43.3%	33.3%	10.0%
	Certainly True	56.7%	63.3%	6.7%
2 Restless, overactive, cannot stay still for long	False	56.7%	53.3%	3.3%
	Somewhat True	30.0%	30.0%	0.0%
	Certainly True	13.3%	16.7%	3.3%
3 Often complains of headaches, stomach-aches or sickness	False	70.0%	66.7%	3.3%
	Somewhat True	26.7%	20.0%	6.7%
	Certainly True	3.3%	13.3%	10.0%
4 Shares readily with other children (treats, toys, pencils etc.)	False	0,0%	10.0%	10.0%
	Somewhat True	56.7%	50.0%	6.7%
	Certainly True	43.3%	40.0%	3.3%
5 Often has temper tantrums or hot tempers	False	70.0%	70.0%	0.0%
	Somewhat rue	23.3%	30.0%	6.7%
	Totally True	6.7%	0.0%	6.7%
6 Rather solitary, tends to play alone	False	80.0%	63.3%	16.7%
	Somewhat True	13.3%	23.3%	10.0%
	Cerrtainly True	6.7%	13.3%	6.7%
7 Generally obedient, usually does what adults request	False	56.7%	66,7%	10.0%
	Somewhat True	40.0%	23.3%	16.7%
	Certainly True	3.3%	10.0%	6.7%
8 Many worries, often seems worried	False	73.3%	73,3%	0.0%
	Somewhat True	23.3%	20.0%	3.3%
	Certainly True	3.3%	6.7%	3.3%
9 Helpful if someone is hurt, upset or feeling ill	False	0.0%	10.0%	10.0%
	Somewhat True	56.7%	46.7%	10.0%
	Certainly True	43.3%	43.3%	0.0%
10 Constantly fidgeting or squirming	False	83.3%	80.0%	3.3%
	Somewhat True	6.7%	6.7%	0.0%
	Certainly True	10.0%	13.3%	3.3%
11 Has at least one good friend	False	83.3%	66.7%	16.7%
	Somewhat True	13.3%	23.3%	10.0%
	Certainly True	3.3%	10.0%	6.7%
12 Often fights with other children or bullies them	False	70.0%	70.0%	0.0%
	Somewhat True	23.3%	20.0%	3.3%
	Certainly True	6.7%	10.0%	3.3%

In terms of items 13 to 25 (Table 3), we observed some relevant issues regarding the false and certainly true categories as well. The items in which the opinions among staff hardly differed in relation to the false category were: 13, 14, 18, 20, 24, in which the differences between both groups of teachers descended to between 3% and 6%. However, in items 15, 19, 22 (classroom teacher responses follow a constant distribution) the differences in response between the groups of teachers in the false category ranged from 10% to 23%. A slightly higher percentage of differences was seen in item 23, where the speech, language and hearing specialists gave a 23% higher response in the false category than the classroom teachers. On the other hand, regarding the certainly true category, the items in which the most differences were observed were 15, 16, 17, 20 and 25, where there was a

difference of between 10% and 20% between classroom teachers and the SLH specialists.

Table 3. Speech, language and hearing Specialists' and Classroom Teachers' (continued)

		SLH Teacher	Class Teacher	Difference in criteria
13 Often unhappy, down-hearted or tearful	False	80.0%	76.7%	3.3%
	Somewhat True	16.7%	16.7%	0.0%
	Certainly True	3.3%	6.7%	3.3%
14 Generally liked by other children	False	46.7%	56.7%	10.0%
	Somewhat True	43.3%	40.0%	3.3%
	Certainly True	10.0%	3.3%	6.7%
15 Easily distracted, concentration wanders	False	43.3%	26.7%	16.7%
	Somewhat True	40.0%	66.7%	26.7%
	Certainly True	16.7%	6.7%	10.0%
16 Nervous or clingy in new situations, easily loses confidence	False	63.3%	53.3%	10.0%
	Somewhat True	30.0%	20.0%	10.0%
	Certainly True	6.7%	26.7%	20.0%
17 Kind to younger children	False	6.7%	10.0%	3.3%
	Somewhat True	33.3%	50.0%	16.7%
	Certainly True	60.0%	40.0%	20.0%
18 Often lies or cheats	False	66.7%	63.3%	3.3%
	Somewhat True	23.3%	30.0%	6.7%
	Certainly True	10.0%	6.7%	3.3%
19 Picked on or bullied by other children	False	86.7%	66.7%	20.0%
	Somewhat True	6.7%	23.3%	16.7%
	Certainly True	6.7%	10.0%	3.3%
20 Often volunteers to help others (parents, teachers, other children)	False	26.7%	23.3%	3.3%
	Somewhat True	40.0%	53.3%	13.3%
	Certainly True	33.3%	23.3%	10.0%
21 Think things out before acting	False	13.3%	10.0%	3.3%
	Somewhat True	63.3%	56.7%	6.7%
	Certainly True	23.3%	33.3%	10.0%
22 Steals from home, school or elsewhere	False	86.7%	100.0%	13.3%
	Somewhat True	13.3%	0.0%	13.3%
	Certainly True	0.0%	0.0%	0.0%
23 Gets on better with adults than with other children	False	86.7%	63.3%	23.3%
	Somewhat True	6.7%	30.0%	23.3%
	Certainly True	6.7%	6.7%	0.0%
24 Many fears, easily scared	False	53.3%	46.7%	6.7%
	Somewhat True	33.3%	33.3%	0.0%
	Certainly True	13.3%	20.0%	6.7%
25 Sees tasks through to the end, good attention span	False	43.3%	30.0%	13.3%
	Somewhat True	40.0%	50.0%	10.0%
	Certainly True	16.7%	20.0%	3.3%

Given that the analysis of discrepancies at the descriptive level was not enough to evaluate the degree of agreement of both groups of teachers regarding the behaviors and attitudes of students with cochlear implants, we proceeded to calculate the Kappa index for each of the items (Tables 3 and 4). In this way, it was possible to assess the degree of agreement as significant, in addition to offering the percentage of agreement between the speech, language and hearing specialists and the classroom teachers when classifying the behavior of the implanted children. In order to assess the intensity of the agreement, we will use the Viera and Garrett scale (2005, p. 362), which classifies the degree of agreement as follows: “<0.01 Less than chance agreement; 0.01-0.20 Slight agreement; 0.21-0.40 Fair agreement; 0.41-0.60 Moderate agreement; 0.61-0.80 Substantial agreement; 0.81-0.99 Almost perfect agreement”.

Table 4 shows the items in which the degree of agreement was significant ($p < 0.05$). The two items with the highest percentage of agreement were 1 and 24, reaching 46% and 45% respectively, allowing us to consider it a Moderate agreement. A somewhat lower degree of agreement (between 37% and 41%) was observed in items 12, 14, 18, 15,

5, 2 and 16. In all of these items the agreement could be defined as a fair agreement. Finally, in items 3, 20 and 6 the degree of agreement, despite being significant, was lower than the previous ones and of a lower intensity than the rest of the items.

Table 4. Items in which the Speech, language and hearing Specialists and the Classroom Teachers show a significant degree of agreement *

Items	% of agreement (Kappa coefficient)
1 Considerate of other people's feelings	46.3
24 Many fears, easily scared	45.7
12 Often fights with other children or bullies them	41.6
14 Generally liked by other children	40.4
18 Often lies or cheats	40.1
15 Easily distracted, concentration wanders	39.6
5 Often has temper tantrums or hot tempers	39.4
2 Restless, overactive, cannot stay still for long	37.4
16 Nervous or clingy in new situations, easily loses confidence	37.3
3 Often complains of headaches, stomach-aches or sickness	29.9
20 Often volunteers to help others (parents, teachers, other children)	27.8
6 Rather solitary, tends to play alone	26.5

*: Sigma <0.05.

Table 5, for its part, displays the items with a degree of agreement that was not statistically significant. Thus, although items 8, 9, 10 and 7 had a fair agreement, this agreement was not relevant in statistical terms. It is possible to observe the existence of items (4, 11, 19, 25 and 13) in which the teacher showed between 20 % and 15% slight agreement. Finally, items 23, 17 and 21 obtained a degree of agreement of less than 6%. The items shown in Table 5 have insignificant degrees of agreement, thus it can be affirmed that there is discrepancy in these items.

Table 5. Items in which the Speech, language and hearing Specialists and the Classroom Teachers DO NOT show a significant degree of agreement *

Items	% of agreement (Kappa coefficient)
22 Steals from home, school, or elsewhere	---**
8 Many worries, often seems worried	27.4
9 Helpful if someone is hurt, upset or feeling ill	27.0
10 Constantly fidgeting or squirming	26.1
7 Generally obedient, usually does what adults request	23.9
4 Shares readily with other children (treats, toys, pencils etc.)	20.2
11 Has at least one good friend	18.7
19 Picked on or bullied by other children	16.7
25 Sees tasks through to the end, good attention span	16.2
13 Often unhappy, down-hearted or tearful	15.9
23 Gets on better with adults than with other children	6.2
17 Kind to younger children younger	3.4
21 Thinks things out before acting	3.0

*: Sig> 0.05.

** : Not calculated as it is a constant.

6. Discussion and Conclusions

The main objective of this study was to get to know and compare the opinion of the classroom teachers and the speech, language and hearing specialist teachers in terms of the relationships and integration of implanted students within the school environment. To this end, five categories were considered that fall into the afore-mentioned characteristics, namely: possible inattention and behavioral problems; the presence or absence of difficulties in relating to their peers; prosocial conducts and emotional characteristics.

Considering that no item has obtained a degree of agreement above 46% in regards to the evaluation of conduct and attitudes of students with cochlear implants, we can state that there are several discrepancies between the speech, language and hearing specialist teachers and the classroom teachers.

In relation to the attention problems of students with cochlear implants, the results found in this study have shown that, although for most classroom teachers and speech, language and hearing specialist teachers the lack of attention, distractions and impulsivity do not suppose daily and generalizable behaviors for all the students implanted since for a high percentage of these, these type of behaviors are present exceptionally. This result, following the direction of Silvestre (2003) and Lesser and Easser (1972), may be motivated by the combination between the frustration generated by their difficulties to communicate and their tendency to be impulsive.

Furthermore, along the lines of Dye and Hauser (2014), Horn, Davis et al. (2005) and Yucel and Derim (2008) it is important to note the high percentage of classroom teachers and speech, language and hearing specialist teachers who expressed that the implanted students displayed difficulties to stay attentive throughout the completion of tasks. Some studies (Quittner et al., 2007, Quittner et al. 1994; Smith, Quittner et al. 1998) suggest that even though in the months following implantation there are substantial improvements in the tasks that require greater and sustained visual attention, it is not until the children have reached 8 or 9 years of age that they are able to make better use of the cochlear implant due to the strong relationship that exists between the level of performance required in each task and the age of the children.

Regarding the externalization of behavioral problems, there are many discrepancies that have been observed when assessing the presence of these in children with cochlear implants. For authors like Calderón and Greenberg, (2003), Quittner et al. (2004) or Schorr, (2005) the deprivation of auditory information and communication at an early age may be an obstacle for learning the main behavioral skills. In this sense, SLH specialist and classroom-teacher assessments did not reflect a clear existence of behavioral problems in implanted children. Similar results were obtained in other studies (Anmyr et al. 2012; de Giacomo et al., 2013) in which it was suggested that the implanted children had similar adaptive behaviors to those of their hearing peers.

As for the results obtained from the assessments made by classroom and SLH teachers on prosocial behavior, it was observed that, although most of the students displayed these types of behaviors, it becomes important to note that a high percentage of classroom teachers described the incidence of these behaviors as Somewhat True. Similar to the results obtained in this study, Punch and Hyde (2010) observed that the vast majority of teachers who gave their opinion on the adaptive skills of these children, considered themselves to be in agreement with the idea that the implanted students had developed the social skills in accordance to their age. The studies by De Giacomo et al., (2013) and Martin, et al. (2010) stated that there were no significant differences in the development of prosocial conducts between the implanted students and their hearing peers. Furthermore, in the first of the studies cited, it was possible to relate the use of the cochlear implant to an improvement in the development of prosocial behavior.

According to the results obtained in this study, the presence of emotional symptoms does not imply generalized behaviors in implanted students. However, most of the SLH and classroom teachers have noted the exceptional appearance of emotional symptoms of these students when faced with new situations. This fact is possibly related to their communication limits caused by a hearing deficit in the implanted students and a fear of failure to communicate in new contexts of interaction to which they are not accustomed (Rommel & Peters, 2009; Schorr et al. 2009). Some studies (Huber & Kipman, 2011; Stinson & Whitmire, 2000; Theunissen, et al., 2012) have shown that early implantation is beneficial both for functional and communication skills (Alegre et al. 2014) and helps to prevent and reduce anxiety levels among students with hearing loss. This fact emphasizes the importance of early implantation as a mechanism to reduce the effects of language deprivation in children, in relation to the presence of emotional symptoms and behavioral problems (Bat-Chava & Deignan, 2001; Francis, Koch, Wyatt, & Niparko, 1999; Fellingner, Holzinger, & Pollard, 2012; Holman et al., 2013; Jiménez, 2011; Rodríguez, 2013).

Regarding the presence of related problems in students with cochlear implants and hearing students, the results obtained did not reflect the existence of significant problems. Thus, in matters related to group play, results similar to those obtained by Punch and Hyde (2010) were observed, where at least 64% of classroom teachers agreed that

implanted students participated regularly with their teammates in group play. These results fell significantly when the classroom teachers assessed (rating as Certainly True) the acceptance of implanted students in the classroom reaching 46.7% for classroom teachers and 56.7% for SLH teachers.

Thus, we can conclude, within the category of attention problems, that although it is not possible to generalize the lack of attention, distractions and impulsivity as daily behaviors, this type of behavior does manifest itself occasionally. A similar trend was reflected by classroom and SLH teachers when assessing the prosocial behaviors of implanted students, where this type of behavior was marked as an exception rather than the norm. Taking into account the results regarding the externalization of behavioral problems and difficulties in relating to their peers we can conclude, in both categories, that there are no significant problems generalizable to all students.

Finally, regarding the category that evaluates the presence of emotional symptoms, the results obtained do not reflect signs of these, although for at least 46.7% of classroom teachers and 36.7% of SLH teachers, these students often lose confidence in themselves when faced with emotional situations that are new to them.

The results obtained are the starting point for future studies that address these and other categories, which can lead us to a better understanding of the possible difficulties present in the social and emotional development of children with cochlear implant and their integration in the different family, peer and school contexts.

Furthermore, they allow us to claim with due caution, the different perceptions of the classroom teacher who is a specialist detecting the behavioural and emotional difficulties of children with early on cochlear implants, even if the limitations of the sample do not allow us to generalize this sample in other contexts. The possible implications of this study could be directed to improving assessment tools, as well as to detect the emotional and behavioural difficulties, due to the relevance of these aspects in the psycho-evolutionary development of children with cochlear implants.

Competing Interests Statement

The authors declare that there are no competing or potential conflicts of interest.

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