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Are parents aware of their children's hearing complaints?

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Abstract

The accuracy of parents' impressions about their child's hearing status is variable and may not correspond to the child's complaints.

Aim: To investigate children's self-reported hearing symptoms and parents' impressions about it.

Methods: 477 children (2nd to 5th grades of elementary schools) were interviewed and parents answered a survey at home. There were 393 matches between the children's interview and the parent's survey.

Results: 29% of the children reported trouble in understanding what people said, 36.1% had history of 1-3 ear infections, 12.7% had four or more ear infections, 21.7% had continuous tinnitus (positive association with history of exposure to loud sounds, $p = 0.0007$), 3.8% had pulsatile tinnitus and 2.9% had auditory hallucinations. 28.5% of the children were annoyed by loud sounds (associated with tinnitus, $p = 0.0142$, and gender, $p = 0.0029$) 10.4% had had audiological tests, and the determinant factors were history of ear infections ($p < 0.001$) and parents' concern about their child's hearing ($p = 0.043$). Parents and their own child's responses were significantly different.

Conclusions: Children's auditory complaints were prevalent and relevant, but most of them had never had an audiological evaluation and most parents were not aware of their child's complaints. Sound intolerances and auditory hallucinations should be considered in clinical and audiological examinations.

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INTRODUCTION

Communication occurs in many ways, but oral communication is the main mode of the educational system. For this reason, early identification of any type or level of hearing loss gives students the opportunity of an early intervention to prevent negative effects of the hearing loss on the child's speech, language, learning, and academic outcomes[1,2].

The prevalence of hearing impairment in children depends on how rigorous the criteria are to define it[1,3,4] and on living conditions and access to health care[2,5]. According to the World Health Organization[3], the prevalence of hearing impairment among school aged children ranges from 0.05% to 7.7%, but more recent studies found prevalence of 14%[6], 14.9%[7], 18.4%[8], 19.5%[9] and 24%[10]. In summary, a considerable number of children face hearing difficulties and need to be identified and receive proper assistance. In countries where hearing screening for school-aged children is not a routine, children can only count on adults' attention. However, studies have shown that parental concern for their child's hearing has low sensitivity and very low positive predictive values for detecting hearing loss, especially minimal or mild ones[4,11,12].

Another auditory symptom that is common among children is tinnitus[13]. Tinnitus is a phantom auditory perception, since it is a perception that is not related to an external source[14-16]. The prevalence of tinnitus among children varies from 6% to 59%[6]. Despite the disclosed prevalence data, attributed to important differences in methods of data collection, diagnostic criteria, and age groups[6], there is a consensus that it is higher among children with otological disorders or history of exposures to loud sounds[4,6,17-20]. Children seem to be less distressed by tinnitus than adults, but children who complain of tinnitus should be taken seriously, since it may be a sign of an otological condition and can affect children's lives as it is reported to have on adults[18].

Auditory hallucination (AH) is a different kind of phantom auditory perception. When the perception has the same qualities as a real one, meaning that the person does not recognize it as a distorted perception, it is called auditory hallucination (AH)[21]. The prevalence of AH in population based studies with adolescents from the general population is around 6%[22,23], although the number of parents who reported hallucinations in their children was less than 1%[22]. In a follow-up research, Dhossche et al.[22] reported that, eight years after they found 6% of adolescents (out of 914) from the general population with self-reported hallucination, no subject was diagnosed with schizophrenia. However, AH were associated with non-psychotic psychiatric problems, such as specific phobias, depressive disorders, substance use disorders, post-traumatic stress disorder and social phobia. Similar development was found in 16 (out of 90) non-psychotic children (5-12 years old) that reported AH in psychiatric clinics[24].

Hyperacusis is defined as a decreased sound tolerance to ordinary sounds, even in low intensities[25]. Annoyance or feeling of displeasure with specific sounds can be called phonophobia (fear of sound) or misophonia (dislike of sound)[26]. There is scarce published information on the prevalence, possible associated causes and prognosis of decreased sound tolerance in childhood. A link between hyperacusis and tinnitus has been described in adults[25-27] and in children[28]. According to Coelho et al.[28] 50% of the children who had hyperacusis also reported tinnitus, and of those who did not have hyperacusis, 17.8% reported tinnitus.

In summary, population studies show that a significant number of children have at least one hearing complaint that can potentially cause negative effects on the child's communication, academic outcomes and emotional well-being. The aims of the present study were to evaluate the parents' impressions about their child's hearing, the prevalence of self-reported hearing impairment, tinnitus, AHs and decreased sound tolerance among children attending the 2nd to 5th grades of elementary school and to investigate possible risk factors for the complaints. The present study is part of a larger one that also sought information about children's knowledge, habits, preferences and protective behaviors regarding loud sound exposures[29].

METHOD

Design

A prospective cross-sectional study was carried out in elementary schools in Campinas, a southeastern Brazilian town with 1.1 million inhabitants. Data were collected between April 2010 and November 2010.

The survey started after a pilot test with 60 children and their parents. We selected the questions of questionnaire with the children and the questions of the survey to the parents that were most suitable for the research.

Selection criteria

In Campinas there are 72,326 students from 2nd to 5th grades[30]. Sixty per cent of them are distributed in 98 State Public Schools, 25% in 42 Municipal Schools and