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Comparison of Emotional-Behavioral Problems and Communication Skills of Students with Congenital (Prelingual) and Acquired (Postlingual) Hearing Loss

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A B S T R A C T

Purpose: Although hearing loss is often diagnosed at an early age, it has negative effects on emotional-behavioral problems and communication skill deficits. Therefore, this study aims to compare the emotional-behavioral problems and communication skills of students with congenital hearing loss (prelingual) and those with acquired hearing loss (Postlingual).

Methodology: This study employed a causal-comparative design. The statistical population included 6 to 8-year-old elementary school students from 10 schools for the deaf in Tehran in the year 2023. Using cluster sampling, 40 children with congenital hearing impairment and 40 children with acquired hearing impairment were selected as the sample. The Rutter Parent Questionnaire for Children's Emotional-Behavioral Problems (1964) and the Matson Parent Form for Social Skills (1983) were administered. The collected data were analyzed using multivariate analysis of variance (MANOVA) and independent t-test, processed with SPSS-23 software.

Findings: The findings indicated a significant difference between the variables of emotional-behavioral problems and communication skills in children with congenital versus acquired hearing loss. Additionally, the results of the independent t-test showed that the average emotional-behavioral problems in children with congenital hearing loss (M = 14.65) were higher than those in children with acquired hearing loss (M = 8.47). However, the average communication skills of children with congenital hearing loss (M = 15.90) were lower compared to those with acquired hearing loss (M = 20.82). Therefore, efforts to improve the well-being of these children should focus on this area .

Conclusion: In general, deafness can lead to emotional, behavioral, and communication difficulties in children. But children born deaf may face long-lasting effects due to their lack of experience and comprehension of hearing. This deficiency can have a detrimental impact on their emotional awareness and relationships with others, resulting in challenges with behavior and emotions.

Keywords: *Emotional-behavioral problems, communication skills, congenital hearing loss, acquired hearing loss, students*

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1. Introduction

Humans primarily experience the world through the five senses: sight, hearing, touch, smell, and taste (He et al., 2022). However, research indicates these senses interact rather than function independently (Serafin, 2022). Examples of this multisensory integration include the ventriloquism effect, where sound is localized to a visual source, and the McGurk effect, where lip movements alter auditory perception. Auditory perception is influenced not only by vision but also by touch and proprioception (Spence, 2011); for instance, tactile input, such as an air bubble, can improve speech perception (Hammer et al., 2024). Sensory damage, including hearing impairment, can cause various disorders. Hearing, a critical brain function for communication, can lead to language disorders when impaired, impacting effective communication (Silva et al., 2006). Hearing loss is typically classified as conductive, sensorineural, or mixed (Sooriyamoorthy & De Jesus, 2020).

Congenital hearing loss, affecting 0.01% to 0.03% of newborns (Sennaroğlu & Bajin, 2017; Lin et al., 2022), is a common and highly heterogeneous sensory disorder (Bharadwaj et al., 2022). This condition can significantly impair a child's development and health, impacting speech, language, literacy, mental health, social skills, academic performance, and cognitive-behavioral functions (Powers, 1999; Qi & Mitchell, 2012). Language delays, common in children with congenital hearing loss, are linked to increased behavioral, social, and emotional difficulties (Topol et al., 2011). The inability to effectively use language and interpret social cues hinders emotional understanding, negatively affecting interpersonal relationships. Furthermore, congenital deafness disrupts auditory cortex development, leading to functional deficits and social stress. This can result in peer rejection and a higher prevalence of emotional and behavioral disorders (Kral & Sharma, 2012).Children who acquire deafness after language development require different educational strategies than those with congenital deafness. Acquired deafness programs focus on maintaining speech and language skills, leveraging prior auditory experience to facilitate social interaction (Ogundiran & Olaosun, 2013), while congenital deafness programs prioritize initial language acquisition, often through sign language.

Children with hearing impairments are vulnerable to mental health issues. Behavioral problems, categorized as internalizing (e.g., social withdrawal, depression) and externalizing (e.g., aggression, hyperactivity) (Guttmannova et al., 2008), can affect their emotional, behavioral, and social development due to communication difficulties. Furthermore, co-occurring cognitive and physical disorders present additional risk factors, contributing to a range of identified behavioral issues in this population (Stevenson et al., 2015). Congenital deafness disrupts spoken language acquisition, hindering communicative fluency (Teklemariam, 2019). This auditory impairment often leads to underdeveloped language and communication skills in children, potentially affecting conceptual growth, environmental awareness, and cognitive functions like reasoning and memory (Teklemariam, 2000). Consequently, children with hearing loss may experience reduced social acceptance, academic difficulties, and increased risk of depression and social interaction problems (Theunissen et al., 2011). Communication barriers and limited social interaction impede the social and emotional learning of students with hearing loss, increasing their risk of social and emotional difficulties (Theunissen et al., 2014). Inadequate auditory information can lead to social challenges and communication deficits, negatively impacting self-esteem, self-concept, and interpersonal relationships (Alramamneh et al., 2020). Because communication is vital for emotion perception (Bosacki & Moore, 2004), its absence can hinder emotional understanding in deaf children, potentially leading to social avoidance (Rieffe & Terwogt, 2006). Emotional development, starting with the recognition of facial expressions and vocal tones (Flavell, 2004), relies on sociolinguistic interactions, including discussions about emotions with family and peers (Taumoepeau & Ruffman, 2008). Therefore, increased focus on social interaction and emotion regulation is crucial for deaf children (Martins et al., 2019), who often struggle to communicate with hearing individuals (Ashori et al., 2019).
Deaf children rely heavily on visual information, particularly facial expressions crucial for differentiating signs in sign language. Consequently, they often struggle with emotion recognition, skills typically developed through auditory and linguistic contexts (Quirin & Lane, 2012). Children with hearing loss exhibit more emotional and behavioral problems compared to their hearing peers, with similar correlations observed between behavior and school performance (Stevenson et al., 2015). Research indicates differences in behavioral issues between congenitally deaf children and those with cochlear implants, with limited speech comprehension and vocabulary linked to increased behavioral problems. Reports from parents and teachers corroborate that children with hearing impairments exhibit more behavioral problems, especially those with poorer speech comprehension and language skills, which increase the risk for behavioral issues in school. Conversely, adequate speech perception and language proficiency protect against behavioral problems (Boerrigter et al., 2019).

Therefore, deafness significantly impacts children's psychological well-being and behavior. Neglecting their emotional, behavioral, and communicative needs can negatively affect their future. Congenitally deaf children are also more susceptible to social challenges than those with acquired deafness, whose prior hearing experiences can influence their mental and emotional states. Given the negative repercussions of these behavioral issues, the limited research comparing the emotional, behavioral, and communicative states of congenitally and acquired deaf children underscores the need for further investigation. This study aims to determine whether there are differences in emotional-behavioral problems and communication skills

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between congenitally deaf (prelingual) and acquired deaf (postlingual) students.

2. Methods and Materials

2.1. Study Design and Participants

This research employed a causal-comparative design. The statistical population included 6 to 8-year-old elementary school students from 10 schools for the deaf in Tehran in the year 2023. Using cluster sampling, 40 children with congenital hearing impairment and 40 children with acquired hearing impairment were selected as the sample.

The study's criteria for selection involved people who had lost their hearing later in life, people who were born deaf, parents willing to commit and give consent for participation, parents with at least a diploma level of education to fill out questionnaires, and those who were unable to fill out questionnaires, had incomplete answers, or had certain mental disorders were excluded.

The study's population comprised 6 to 8-year-old students attending 10 specialized schools for the deaf in Tehran, totaling 1,128 students. To select participants, leading to the inclusion of 5 schools with 10 classes. From these 10 classes, a sample of 168 students was identified. Among them, 40 students with congenital deafness (prelingual deafness) were purposefully selected. Additionally, 40 students with acquired deafness (postlingual deafness) were chosen from the same schools. It is important to note that the questionnaires were directed towards parents and distributed to the mothers .This study was conducted in collaboration with the principals of deaf schools in Tehran. Parental consent was obtained, and all necessary tools were provided while adhering to ethical principles.

2.2. Measures

1.2.1. The Rutter Emotional-Behavioral Problems Questionnaire for parents

It was developed by Rutter in 1964 and consists of 31 items (Rutter et al., 1964). Of these, 22 items pertain to the emotional-behavioral model. The first four questions are scored as follows: "Yes" = 2, "No" = 0, and "Sometimes" = 1. Questions 5 through 22 use a three-point scale: "Not True" = 0, "Somewhat True" = 1, and "Completely True" = 2. The total score ranges from 0 to 36, with a cut-off score of 13. Rutter et al. (1975) reported a test-retest reliability coefficient of 0.74 and an internal consistency of 0.76 for this questionnaire (Rutter et al., 1975). Additionally, Ashuri and Delalzadeh Bigdeli (2018) found the reliability and validity coefficients to be 0.70 and 0.78, respectively (Ashori & Dallalzadeh Bidgoli, 2018).

1.2.2. Matson Parental Social Skills Questionnaire

It was developed by Matson et al. (1983), this questionnaire consists of 55 items across five subscales of social behavior: social behavior (items 1-18), antisocial behavior (items 19-29), aggression and impulsiveness (items 30-40), self-confidence (items 41-46), and communication with peers (items 47-55). Responses are rated on a Likert scale from 1 (never) to 5 (always). Note that items 19-47, 49, 50, 52, 54, and 55 are reverse-scored (Matson et al., 1983). For this study, only the items related to the communication skills component were utilized. In their 2008 study, Yousefi and Khayer examined the psychometric properties of a questionnaire, assessing its validity and reliability (Yousefi, 2008). The study revealed that the Cronbach's alpha coefficient for the entire scale was 0.86. They also assessed the validity of the scale and identified five subscales, each corresponding to separate factors. The Cronbach's alpha coefficients for these subscales were as follows: social behaviors, 0.73; antisocial behaviors, 0.71; aggression and impulsive behavior, 0.76; superiority seeking and high confidence, 0.68; and relationships with peers, 0.80(Yousefi, 2008).

1.3. Data Analysis

Data were collected using multivariate analysis, and variables were analyzed with independent t-tests using SPSS-23 software. The M-box test results for emotional-behavioral problems and communication skills show a significance level greater than 0.05, indicating acceptance of the null hypothesis and equality of the observed covariance matrices for the dependent variables.

3. Findings and Results

The study included 80 deaf children, with 40 having congenital deafness and 40 having acquired deafness. The age distribution was as follows: 24 children (30%) were 6 years old; 45 children (56.3%) were 7 years old, and 11 children (13.8%) were 8 years old. Regarding parental education, 19 fathers (23.8%) had completed elementary education, 39 (48.8%) had a high school diploma, 11 (13.8%) had postgraduate education, 6 (7.5%) had a bachelor's degree, and 5 (6.3%) had education beyond a bachelor's degree. For mothers, 21 (26.3%) had completed elementary education, 44 (55%) had a high school diploma, 7 (8.8%) had post-diploma education, 6 (7.5%) had a bachelor's degree, and 2 (2.5%) had education beyond a bachelor's degree(Table 1).

Table 1

Descriptive Data of Variables and Normality of Data for Sample Individuals

Group	Variables	Mean	SD	Normality of Data		Kolmogorov-Smirnov Test
				Skewness	Kurtosis	P
Emotional-Behavioral Problems	Congenital Deafness	14.65	3.30	0.597	0.066	0.183
	Acquired Deafness	8.47	3.05	1.113	1.846	0.060

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Communication Skills	Congenital Deafness	15.90	4.13	0.346	-0.603	0.070
	Acquired Deafness	20.82	3.60	-0.776	0.812	0.058

Table 1 reveals that children with congenital hearing loss exhibit a higher average of emotional-behavioral problems, while their communication skills are lower on average compared to those with acquired deafness, highlighting the differences between these variables. Additionally, the skewness and kurtosis values for the variables fall within the acceptable range of +2 to -2, and the significance level in the Kolmogorov-Smirnov test exceeds the threshold ($P \geq 0.05$), indicating normal distribution .

Table 2

Results of Multivariate Analysis of Variance (MANOVA)

Statistical Test	Value	F Statistic	Degrees of Freedom	Error Degrees of Freedom	p	Eta Squared
Pillai's Trace	0.604	58.743	**2**	**77**	**0.001**	0.604
Lambda's Wilks	0.396	58.743	**2**	**77**	**0.001**	0.604
Hotelling's Trace	526.1	58.743	**2**	**77**	**0.001**	0.604
Roy's Largest Root	526.1	58.743	**2**	**77**	**0.001**	0.604

Table 2 presents the results of the multivariate analysis of variance, showing that congenital and acquired deafness had a significant multivariate effect on emotional-behavioral problems and communication skills (**Partial Eta = 0.60, P ≤ 0.001, Hotelling's Trace = 58.7, F = 2**). This indicates a significant difference in at least one of the examined variables between children with congenital and acquired deafness.

Table 3

Results of the Multivariate Analysis of Variance (MANOVA)

Statistical Index	Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	p	η^2
Group Effect	Emotional-Behavioral Problems	762.613	1	762.613	75.194	0.000	0.49
	Communication Skills	485.113	1	485.113	32.303	0.000	0.29

Table 3 shows that the F-value for emotional-behavioral problems ($F = 75.194$, $P = 0.000$, $\eta^2 = 0.49$) and communication skills ($F = 32.303$, $P = 0.000$, $\eta^2 = 0.29$) are significant at the 0.01 level. Therefore, it can be concluded that congenital deafness, more than acquired deafness, increases the likelihood of emotional-behavioral problems and deficits in communication skills.

Table 4

Mean Marginals and Standard Errors for Emotional-Behavioral Problems and Communication Skills in both groups

Variable		Mean	Standard Error	95% Confidence Interval	
				lowest	highest
Emotional-Behavioral Problems	Congenital Deafness	14.650	0.504	13.648	15.652
	Acquired Deafness	8.475	0.504	7.473	9.477

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Communication Skills	Congenital Deafness	15.900	0.613	14.680	17.120
	Acquired Deafness	20.825	0.613	19.605	22.045

Table 4 shows that the adjusted mean for emotional-behavioral problems in children with congenital hearing loss is higher compared to children with acquired hearing loss. However, the adjusted mean for communication skills is lower in children with congenital hearing loss than in those with acquired hearing loss, indicating a significant difference between the two groups.

Table 5

Independent t-Test for Comparing Emotional-Behavioral Problems and Communication Skills in both groups

ariable	Group	Levene's Test		Mean	Mean Difference	t-value	df	p
		f	p					
Emotional-Behavioral Problems	Congenital Deafness	0.479	0.491	14.650	6.175	8.671	78	0.000
	Acquired Deafness			8.475				
Communication Skills	Congenital Deafness	3.068	0.084	15.900	- 04.92	-5.684	78	0.000
	Acquired Deafness			20.825				

Table 5 presents the results of Levene's test, indicating that the assumption of equal variances between the two groups is met. The t-test results for the variable 'emotional-behavioral problems' (t = 8.671, sig. = 0.000) show that the mean level of emotional-behavioral problems in children with congenital hearing loss is significantly higher than in children with acquired hearing loss. Similarly, the second row of the table shows that Levene's test confirms the assumption of equal variances between the groups. The t-test results for the variable 'communication skills' (t = -5.684, sig. = 0.000) indicate that the mean level of communication skills in children with congenital hearing loss is significantly lower than in those with acquired hearing loss. With 99% confidence, it can be concluded that there is a significant difference in communication skills between the two groups, confirming this hypothesis.

4. Discussion and Conclusion

Hearing loss is the most common sensory impairment globally, affecting over half a billion people (Wilson et al., 2017). As a fundamental sense, hearing is vital for an individual's connection to the world, playing a crucial role in the development of both language and cognitive functions. In children, hearing loss occurs in 1 to 6 per 1,000, and can manifest as either unilateral or bilateral impairment (Katbamna et al., 2008). This study aimed to compare the emotional-behavioral problems and communication skills of students with congenital (prelingual) and acquired (postlingual) deafness in Tehran. The results of multivariate variance analysis revealed that congenital deafness, more than acquired deafness, significantly contributes to increased emotional-behavioral problems and reduced communication skills. In other words, a significant difference was observed between the two groups, with children who have congenital hearing impairments displaying more emotional-behavioral challenges and lower communication skills compared to those with acquired hearing loss, confirming this hypothesis. Also, the independent t-test results revealed that children with congenital hearing loss exhibited significantly higher levels of emotional-behavioral problems compared to those with acquired hearing loss. Additionally, children with congenital deafness demonstrated lower communication skills, confirming this hypothesis.

The results are consistent with previous studies. Soleimani, Jalali, and Faqih (2020) found that deaf children exhibit higher levels of attention deficit/hyperactivity problems compared to their hearing peers (Soleimani et al., 2020). Braripour and Movallely (2017) concluded that emotional and behavioral problems are more prevalent in the hearing-impaired group than in the hearing group (Braripour and Movallely, 2017). Similarly, Mullally & O'Mara (2013) reported that the rate of behavioral issues is significantly higher among hearing-impaired children than their hearing counterparts (Mullally & O'Mara, 2013). Four key factors contribute to the behavioral issues observed in children with hearing loss: language impairment, communication difficulties, parental roles, and societal attitudes and beliefs toward hearing impairment (Amini, 2013). Emotional problems in these children are notably different and more pronounced, with those who have congenital hearing loss exhibiting significantly higher levels of emotional and cognitive difficulties. Michael et al. (2019) further reported that children with cochlear implants, compared to those with hearing aids, exhibited lower levels of hyperactivity and inattention, alongside higher levels of socially desirable behaviors (Michael et al., 2019). Chang et al. (2023) observed that families with deaf or hard of hearing children were more likely to adopt permissive parenting styles, with these children displaying more externalizing and

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internalizing behavioral problems than their peers (Chang et al., 2023).Tuohimaa et al. (2022) found that children with bilateral hearing aids scored lower than their hearing peers on the subscales of speech communication skills, syntax, semantics, and coherence (Tuohimaa et al., 2022). Similarly, children with bilateral cochlear implants demonstrated lower scores than the normal hearing group across all subscales of communication skills.

Mohammadi-Jalali and colleagues (2021) demonstrated that the average social skills scores of students with acquired hearing loss attending inclusive schools were higher than those of students with hearing loss attending special education schools (Mohammadi-Jalali, 2021). Similarly, Haukedal and colleagues (2022) found that, in their study of social interaction and quality of life in children using hearing aids, the hearing-impaired group had overall weaker communication skills compared to their peers with normal hearing. (Haukedal et al., 2022). Children in the hearing-impaired group with hearing aids scored significantly lower than their normally hearing peers in both structural language and social communication. In terms of psychosocial functioning, there were notable differences between the groups, with deaf individuals exhibiting at least twice the number of communication problems compared to both hearing aid users and normally hearing individuals. Elwey and colleagues (2021) found that, across all domains of social skills and competencies, children with congenital deafness scored statistically lower than both normally hearing children and those with acquired hearing loss (Elwey et al., 2021). However, children with acquired hearing loss performed better than the control group in empathy and self-expression. On the other hand, normally hearing children outperformed those with hearing loss in areas such as cooperation, social interaction with adults, organization, communication, social-emotional control, and flexibility.

Overgaard et al. (2021) found that youths with hearing impairments exhibit significantly higher levels of emotional and behavioral problems (Overgaard et al., 2021). Their results also revealed that children with bilateral deafness have lower quality of life and experience more behavioral and emotional issues. Similarly, Stevenson et al. (2015) demonstrated that groups with hearing impairments face greater emotional and behavioral difficulties compared to those with normal hearing (Stevenson et al., 2015). Children and adolescents with emotional-behavioral disorders typically score about one to two standard deviations higher in emotional and behavioral problems compared to hearing children. Those with hearing impairments often require support to enhance their social relationships, particularly with peers. One primary concern regarding early-onset deafness is its impact on speech and language development. The connection between early hearing impairments and poor language outcomes is well-documented in the scientific literature (Ching & Jaffri, 2015). Children with congenital deafness are highly vulnerable to poor socio-emotional development. For many of them, communication challenges make it relatively difficult to learn social and emotional skills (Theunissen et al., 2011). Due to their limited understanding of social interactions, deaf children often respond emotionally and struggle with recognizing and interpreting emotions. Consequently, these difficulties manifest in their interactions, leading to social withdrawal and reduced social engagement (Dowdall et al., 2017). Children with congenital deafness may struggle to understand the linguistic nature of auditory signals, even if they perceive some sounds. This limitation reduces their opportunities for meaningful interactions and can lead to peer rejection. Additionally, when children with congenital hearing impairment have difficulty comprehending interpersonal interactions, they often exhibit aggressive behavior, which further diminishes their communication skills and interactions (Vohr et al., 2012) Overall, deafness is a contributing factor to emotional, behavioral, and communication challenges in children. However, congenital deafness tends to have more enduring effects because children born deaf lack the experience and understanding of hearing. This absence can negatively impact their emotional understanding and interpersonal interactions, often leading to emotional-behavioral difficulties. In contrast, children with acquired hearing loss, having experienced sound and developed language comprehension, are generally more adept at recognizing and interpreting the emotions of others, which positively influences their interpersonal relationships. Therefore, the experience of listening in children with acquired hearing loss is a critical factor that distinguishes them from those with congenital deafness. This distinction is supported by findings showing that emotional-behavioral problems are more prevalent in children with congenital hearing loss, and their social skills are less developed.

This study had several limitations. First, the use of parent-report questionnaires may introduce response bias, so providing thorough explanations to parents before administering such instruments is recommended. Additionally, the variability in intelligence and socio-economic status among the children could affect their emotional-behavioral issues and communication skills. Future research should consider these factors. Furthermore, it is advisable for counselors and psychologists to focus on improving auditory skills in children with both congenital and acquired hearing impairments, as this could potentially enhance the mental health of deaf children facing emotional and behavioral challenges.

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Authors' Contributions

The author conducted the interview and collected data, analyzed the data and wrote the article.

Declaration

I used ChatGPT to refine the academic writing in our paper.

Transparency Statement

Data are available from the corresponding author upon reasonable request.

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Declaration of Interest

The author declares that there is no conflict of interest or bias present in this article.

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Ethics Considerations

To ensure ethical practices, participants provided informed consent after being informed about the research goals and significance prior to the interview.

References

Alramamneh, A., Sabayleh, O., Hazim, S., & Drei, S. (2020). Psychological and social problems of hearing-impaired students and the adopted coping strategies in deaf schools. The Journal of Educational Research, 2. https://doi.org/10.36941/jesr-2020-0039

Amini, D., Afrooz, G. A., Sharifi-Daramdi, P., and Homan, H. AD. (2013). Recognition of emotional disorders and problems and emotional functions of deaf children compared to normal children in the components of anxiety, depression, aggression, impulsivity and incompatibility. Ibn Sina Journal of Clinical Medicine, 20(1), 49-58. http://sjh.umsha.ac.ir/article-1-152-en.html

Ashori, M., & Dallalzadeh Bidgoli, F. (2018). The effectiveness of play therapy based on cognitive-behavioral model: behavioral problems and social skills of pre-school children with attention deficit hyperactivity disorder. Archives of Rehabilitation, 19(2), 102-115. http://rehabilitationj.uswr.ac.ir/article-1-2314-en.html

Ashori, M., Yazdanipour, M., & Pahlavani, M. (2019). The effectiveness of cognitive rehabilitation program on auditory perception and verbal intelligibility of deaf children. American journal of otolaryngology, 40(5), 724-728. 10.1016/j.amjoto.2019.06.011

Bharadwaj, T., Schrauwen, I., Rehman, S., Liaqat, K., Acharya, A., Giese, A. P., Nouel-Saied, L. M., Nasir, A., Everard, J. L., & Pollock, L. M. (2022). ADAMTS1, MPDZ, MVD, and SEZ6: candidate genes for autosomal recessive nonsyndromic hearing impairment. European Journal of Human Genetics, 30(1), 22-33. 10.1038/s41431-021-00913-x

Boerrigter, M., Vermeulen, A., Marres, H., Mylanus, E., & Langereis, M. (2019). Frequencies of behavioral problems reported by parents and teachers of hearing-impaired children with cochlear implants. Frontiers in psychology, 10, 1591. 10.3389/fpsyg.2019.01591

Bosacki, S. L., & Moore, C. (2004). Preschoolers' understanding of simple and complex emotions: Links with gender and language. Sex roles, 50, 659-675. https://doi.org/10.1023/B:SERS.0000027568.26966.27

Braripour, A., and Mullally, G. . (2017). A review of researches in the field of emotional and behavioral disorders of hearing impaired children. Journal of Rehabilitation Medicine, 7(3), 274-284. 10.22037/jrm.2017.110776.1523

Chang, F., Wu, H. X., Ching, B. H.-H., Li, X., & Chen, T. T. (2023). Behavior problems in deaf/hard-of-hearing children: contributions of parental stress and parenting styles. Journal of Developmental and Physical Disabilities, 35(4), 607-630. 10.1007/s10882-022-09869-2

Ching, L. M., & Jaffri, H. (2015). Developing discipline among students through social-emotional learning: A new model to prevent and reduce behavior problems. Journal of Education and Vocational Research, 6(2), 80-90. https://doi.org/10.22610/jevr.v6i2.193

Dowdall, N., Cooper, P. J., Tomlinson, M., Skeen, S., Gardner, F., & Murray, L. (2017). The Benefits of Early Book Sharing (BEBS) for child cognitive and socio-emotional development in South Africa: study protocol for a randomised controlled trial. Trials, 18, 1-13. https://doi.org/10.1186/s13063-017-1790-1

Elwey, M. E.-S. M., SobhySorour, A., Abo-Alsood, A., & Mahmoud, S. F. (2021). Social Competence in Children: Difference between Normal and Hearing Impaired. Annals of the Romanian Society for Cell Biology, 25(6), 18811-18822. http://annalsofrscb.ro/index.php/journal/article/view/9458

Flavell, J. H. (2004). Theory-of-mind development: Retrospect and prospect. Merrill-Palmer Quarterly (1982-), 274-290.

Guttmannova, K., Szanyi, J. M., & Cali, P. W. (2008). Internalizing and externalizing behavior problem

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Iranian Journal of Educational Sociology
E-ISSN: 2645-3460

scores: Cross-ethnic and longitudinal measurement invariance of the Behavior Problem Index. Educational and Psychological Measurement, 68(4), 676-694. https://doi.org/10.1177/0013164407310127

Hammer, L., Kamper, N. R., Jantzen, L., Serafin, S., & Percy-Smith, L. (2024). Self-reported social well-being of children with hearing loss in 2023. Cochlear implants international, 1-7. 10.1080/14670100.2024.2347769

Haukedal, C. L., Wie, O. B., Schauber, S. K., Lyxell, B., Fitzpatrick, E. M., & von Koss Torkildsen, J. (2022). Social communication and quality of life in children using hearing aids. International journal of pediatric otorhinolaryngology, 152, 111000. 10.1016/j.ijporl.2021.111000

He, M., Wang, Y., Wang, W. J., & Xie, Z. (2022). Therapeutic plant landscape design of urban forest parks based on the Five Senses Theory: A case study of Stanley Park in Canada. International Journal of Geoheritage and Parks, 10(1), 97-112. https://doi.org/10.1016/j.ijgeop.2022.02.004

Katbamna, B., Crumpton, T., & Patel, D. R. (2008). Hearing impairment in children. Pediatric Clinics of North America, 55(5), 1175-1188. 10.1016/j.pcl.2008.07.008

Kral, A., & Sharma, A. (2012). Developmental neuroplasticity after cochlear implantation. Trends in neurosciences, 35(2), 111-122. 10.1016/j.tins.2011.09.004

Lin, J. J., Gillam, L., Smith, L., Carew, P., King, A., Ching, T. Y., & Sung, V. (2022). Mild matters: parental insights into the conundrums of managing mild congenital hearing loss. International Journal of Audiology, 61(6), 500-506. https://doi.org/10.1080/14992027.2021.1954248

Martins, A. T., Faísca, L., Vieira, H., & Gonçalves, G. (2019). Emotional recognition and empathy both in deaf and blind adults. The Journal of Deaf Studies and Deaf Education, 24(2), 119-127. https://doi.org/10.1093/deafed/eny046

Matson, J. L., Rotatori, A. F., & Helsel, W. J. (1983). Development of a rating scale to measure social skills in children: The Matson Evaluation of Social Skills with Youngsters (MESSY). Behaviour Research and therapy, 21(4), 335-340. 10.1016/0005-7967(83)90001-3

Michael, R., Attias, J., & Raveh, E. (2019). Cochlear implantation and social-emotional functioning of children with hearing loss. The Journal of Deaf Studies and Deaf Education, 24(1), 25-31. https://doi.org/10.1093/deafed/eny034

Mohammadi-Jalali, M., Kishori-Hamid, D., Heydari, M., and Khanabadi, H. (2021). Comparison of social skills of hearing-impaired male primary school students in integrated and exceptional schools in Arak city. Two scientific quarterly journals - specialized research in multi-level and integrated lasses, 1(1), 15-22. https://educt.cfu.ac.ir/article_1665.html?lang=en

Mullally, S. L., & O'Mara, S. M. (2013). Suppressing the encoding of new information in memory: A behavioral study derived from principles of hippocampal function. PLoS One, 8(1), e50814. https://www.researchgate.net/publication/25864447

Ogundiran, O., & Olaosun, O. (2013). Comparison of academic achievement between students with congenital and acquired deafness in a Nigerian College. Journal of Education and Practice, 4(23), 42-47. https://doi.org/10.1016/j.ijporl.2021.110718

Overgaard, K. R., Oerbeck, B., Wagner, K., Friis, S., Øhre, B., & Zeiner, P. (2021). Youth with hearing loss: Emotional and behavioral problems and quality of life. International journal of pediatric otorhinolaryngology, 145, 110718. https://doi.org/10.1093/jpepsy/24.2.131

Powers, S. W. (1999). Empirically supported treatments in pediatric psychology: procedure-related pain. Journal of pediatric psychology, 24(2), 131-145. https://doi.org/10.1093/jpepsy/24.2.131

Qi, S., & Mitchell, R. E. (2012). Large-scale academic achievement testing of deaf and hard-of-hearing students: Past, present, and future. Journal of deaf studies and deaf education, 17(1), 1-18. https://doi.org/10.1093/deafed/enr028

Quirin, M., & Lane, R. D. (2012). The construction of emotional experience requires the integration of implicit and explicit emotional processes. Behavioral & Brain Sciences, 35(3). https://psycnet.apa.org/doi/10.1017/S0140525X11001737

Rieffe, C., & Terwogt, M. M. (2006). Anger communication in deaf children. Cognition and emotion, 20(8), 1261-1273. https://psycnet.apa.org/doi/10.1080/02699930500513502

Rutter, M., Birch, H. G., Thomas, A., & Chess, S. (1964). Temperamental characteristics in infancy and the later development of behavioural disorders. The British Journal of Psychiatry, 110(468), 651-661. https://psycnet.apa.org/doi/10.1192/bjp.110.468.651

Rutter, M., Cox, A., Tupling, C., Berger, M., & Yule, W. (1975). Attainment and adjustment in two geographical areas: I—the prevalence of psychiatric disorder. The British Journal of Psychiatry, 126(6), 493-509. https://psycnet.apa.org/doi/10.1192/bjp.110.468.651

Sennaroğlu, L., & Bajin, M. D. (2017). Classification and current management of inner ear malformations. Balkan medical journal, 34(5), 397-411. https://doi.org/10.4274/balkanmedj.2017.0367

Serafin, S. (2022). Audio in Multisensory Interactions: From Experiments to Experiences. In Sonic Interactions in Virtual Environments (pp. 305-318). Springer International Publishing Cham. https://link.springer.com/chapter/10.1007/978-3-031-04021-4_10

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Iranian Journal of Educational Sociology
E-ISSN: 2645-3460

Silva, L. P. A. d., Queiros, F., & Lima, I. (2006). Etiology of hearing impairment in children and adolescents of a reference center APADA in the city of Salvador, state of Bahia. Revista Brasileira de Otorrinolaringologia, 72, 33-36. https://doi.org/10.1016/s1808-8694(15)30031-8

Soleimani, R., Jalali, M., & Faghih, H. (2020). Comparing the prevalence of attention deficit hyperactivity disorder in hearing-impaired children with normal-hearing peers. Archives de Pédiatrie, 27(8), 432-435. https://doi.org/10.1016/j.arcped.2020.08.014

Sooriyamoorthy, T., & De Jesus, O. (2020). Conductive hearing loss. https://pubmed.ncbi.nlm.nih.gov/33085414/

Spence, C. (2011). Crossmodal correspondences: A tutorial review. Attention, Perception, & Psychophysics, 73, 971-995. https://link.springer.com/article/10.3758/s13414-010-0073-7

Stevenson, J., Kreppner, J., Pimperton, H., Worsfold, S., & Kennedy, C. (2015). Emotional and behavioural difficulties in children and adolescents with hearing impairment: a systematic review and meta-analysis. European child & adolescent psychiatry, 24, 477-496. https://doi.org/10.1007/s00787-015-0697-1

Taumoepeau, M., & Ruffman, T. (2008). Stepping stones to others' minds: Maternal talk relates to child mental state language and emotion understanding at 15, 24, and 33 months. Child development, 79(2), 284-302. https://doi.org/10.1111/j.1467-8624.2007.01126.x

Teklemariam, A. (2000). Communication Experiences of Pre-lingual Deaf Students. University of Oslo, Norway M. Phil Thesis Unpublished]. https://respond-her.univie.ac.at/fileadmin/user_upload/p_respond_her/CV_Alemayehu_Teklemariam.pdf

Teklemariam, A. (2019). Impacts of Congenital Deafness on Language and Cognitive Development of Primary Schools Deaf Students in Addis Ababa. Eastern Africa Social Science Research Review, 35(1), 4-28. https://www.ajol.info/index.php/eassrr/article/view/189944

Theunissen, S. C., Rieffe, C., Kouwenberg, M., De Raeve, L. J., Soede, W., Briaire, J. J., & Frijns, J. H. (2014). Behavioral problems in school-aged hearing-impaired children: the influence of sociodemographic, linguistic, and medical factors. European child & adolescent psychiatry, 23, 187-196. https://pubmed.ncbi.nlm.nih.gov/advanced/

Theunissen, S. C., Rieffe, C., Kouwenberg, M., Soede, W., Briaire, J. J., & Frijns, J. H. (2011). Depression in hearing-impaired children. International journal of pediatric otorhinolaryngology, 75(10), 1313-1317. https://doi.org/10.1016/j.ijporl.2011.07.023

Topol, D., Girard, N., Pierre, L. S., Tucker, R., & Vohr, B. (2011). The effects of maternal stress and child language ability on behavioral outcomes of children with congenital hearing loss at 18–24 months. Early human development, 87(12), 807-811. https://doi.org/10.1016/j.earlhumdev.2011.06.006

Tuohimaa, K., Loukusa, S., Löppönen, H., Välimaa, T., & Kunnari, S. (2022). Communication abilities in children with hearing loss–views of parents and daycare professionals. Journal of Communication Disorders, 99, 106256. https://doi.org/10.1016/j.jcomdis.2022.106256

Vohr, B., Topol, D., Girard, N., Pierre, L. S., Watson, V., & Tucker, R. (2012). Language outcomes and service provision of preschool children with congenital hearing loss. Early human development, 88(7), 493-498. https://doi.org/10.1016/j.earlhumdev.2011.12.007

Wilson, B. S., Tucci, D. L., Merson, M. H., & O'Donoghue, G. M. (2017). Global hearing health care: new findings and perspectives. The Lancet, 390(10111), 2503-2515. https://doi.org/10.1016/s0140-6736(17)31073-5

Yousefi, F., and Khair, M. (2008). Examining the reliability and validity of Matson's social skills scale and comparing the performance of high school girls and boys in this scale. Journal of Social and Human Sciences of Shiraz University, 18(36-2), 148-158. https://sid.ir/paper/419688/fa

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E-ISSN: 2645-3460