

# Efficacy of Cognitive Behavioral Play Therapy on the Performance of Hearing Aid User Children

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## **Abstract:**

Hearing is fundamental for children's language acquisition, cognitive development, and social integration. Hearing loss, when unmanaged, can negatively influence communication, education, and emotional well-being. Despite the proven benefits of hearing aids, many children refuse their use due to stigma, poor device satisfaction, or psychological barriers. This highlights the need for supportive therapeutic approaches addressing emotional and behavioral aspects of hearing aid adaptation.

**Keywords:** Hearing loss; Hearing aid refusal; Cognitive Behavioral Therapy; Play therapy; Emotional development; Child rehabilitation.

## **Introduction:**

A child hearing is the key for learning spoken language, performing academically and engaging socially. Hearing loss poses a barrier to education and social integration that may lead to long-lasting negative outcomes ranging from poor academic performance and interpersonal problems to sense of loneliness and limited job opportunities (1).

Hearing loss suggests worsening deficits in cognitive and mental processing, which could cause isolation and psychopathological problems, making integration into society more difficult. Children with hearing loss can benefit greatly from being identified early in life and offered proper rehabilitation such as appropriate well fitted hearing aid. However, not all children finally use their hearing aids (2).

Children may reject hearing aids; some factors are related to the device mold, lack of maintenance, noise complaints, unmet expectations or lack of a subjective improvement. However, with properly fitted hearing aids, there may be other factors such as personal (e.g., source of motivation, expectation, attitude, hearing sensitivity), demographic (e.g., age, gender) (3).

One of the reasons for hearing aid refusal is the stigma related to hearing loss. Concealing hearing aid use is a commonly reported stigmatic behavior. The term stigma refers to any attribute, trait or disorder that marks an individual as being unacceptable, unlike the "normal" individuals with whom he or she routinely interacts. Such a trait is expected to elicit some form of (negative) community reaction (4).

Long term unmanaged hearing loss because of hearing aid refusal can lead to reorganization of the auditory pathways due to sensory deprivation. Such reorganization can make adjustment to hearing aids more difficult after a long period of auditory deprivation that lead to psychosocial, physiological, cognitive and behavioral impairments. For children refusing hearing aids, their hearing loss may make them tense and nervous, making speech recognition more difficult. They are more likely to be annoyed or exasperated during routine encounters. They may feel anomalous, weakened, or disabled. Some deniers are constantly afraid of being found out as being hearing impaired. Other children may become the object of hurtful gibes or shame, leading to reduction in participation in social activities (5).

There are several potential mechanisms that could explain the observed association between hearing loss, social isolation and loneliness. Social isolation is a measure of an individual's social network size, number of social contacts and frequency of engagement with social contacts, whereas loneliness is a subjective measure of an individual's perceived discrepancy between desired and actual social relationship (6).

Depression and anxiety are two important psychological issues in hearing impaired children. One of most efficient methods to treat anxiety disorder is cognitive behavioral therapy (CBT). CBT is an integrative and pragmatic therapy, which aim is to modify dysfunctional behaviors and beliefs to reduce symptoms, increase daily life functioning and ultimately promote recovery from the disorder. CBT approaches share the premise that human suffering (psychological distress) and resulting problems are based in malfunctioning information processing, emotional reactivity and behavioral mechanisms (7).

Cognitive behavioral play therapy (CBPT) is a therapeutic intervention that adapts CBT techniques in a play setting with children who take an active role in the process of change and problem mastery. It is based on cognitive and behavioral theories of emotional development and psychopathology and defines an integrated psychotherapy model that incorporates empirically supported techniques with the use of play therapy that attract children (8).

### **Hearing Impairment and Psychological Problems in Children**

Disabling hearing loss in children is defined by the **World Health Organization (9)** as a pure-tone average threshold (PTA) > 30 dB HL in the better ear, occurring in 1.7% of children aged 0–14 years. The prevalence of hearing loss varies globally from 0.2% to 7.8%, with delayed-onset loss at six years ranging between 0.6 and 0.8 per 1000 (10). Clinically, hearing loss may be conductive, sensorineural, or mixed. Beyond auditory function, disabling impairment profoundly affects communication, psychosocial health, and education (11). Children with hearing loss experience poor language and literacy development, weaker executive functions, and reduced academic achievement (12, 13). Social isolation and emotional distress are common, often leading to frustration, low self-esteem, and inferiority feelings (14-16). Early intervention and inclusive education are essential to support language and psychosocial development (17).

### **Hearing Aid Refusal**

Hearing aid refusal represents denial of hearing loss and resistance to rehabilitation (18). The “hearing aid effect” describes negative perceptions toward users of assistive devices, influenced by stigma and misconceptions (19). Visibility of the device, societal stereotypes, and vanity contribute to rejection (20). Poor device handling, unrealistic expectations, or discomfort can also lead to nonadherence (21).

Stigma plays a central role. Anticipated discrimination causes individuals to conceal their hearing loss and avoid aids (22). However, modern wireless earbuds and stylish devices may reduce stigma (23). Education level also correlates positively with hearing aid acceptance (24). Globally, hearing aid rejection rates range from 20–40%, often due to low perceived benefit or cosmetic concerns (21, 25). In Saudi Arabia, the prevalence of hearing loss is 13% in children and 17% in adults, with stigma, cost, and access barriers limiting use (26).

### **Cognitive Behavioral Therapy (CBT)**

CBT is a time-limited, problem-focused psychotherapy that modifies dysfunctional thoughts and behaviors (27). It effectively treats depression, anxiety, and emotional disorders (28). CBT integrates cognitive and behavioral theories, focusing on how distorted beliefs influence emotions and actions (29). The ABC model explains emotional disturbance: an activating event (A) triggers beliefs (B), which lead to consequences (C) (30). Educating patients about this model enhances insight and motivation to reframe maladaptive thinking (31).

Patients with hearing loss often link emotional distress to their condition, perceiving hopelessness and withdrawal (32). CBT uses psychoeducation, relaxation, cognitive restructuring, attention control, imagery, and behavioral techniques to reshape perception and coping (33-35). These tools help manage anxiety, stigma, and depressive responses associated with hearing device use. The therapy's evolution spans three waves: behaviorism (conditioning), cognitive-behavioral integration, and modern acceptance-based approaches emphasizing mindfulness and values (36).

### **CBT in Children**

CBT in children addresses both internalizing (anxiety, depression) and externalizing (ADHD, conduct) disorders (37). It teaches cognitive flexibility and emotional regulation through structured and playful interventions suitable to developmental stages (38). Children learn to replace negative thoughts with positive, realistic alternatives (39). Therapists use goal setting, reinforcement, and home tasks to promote self-awareness and behavioral control (40). Establishing trust and readiness to change is vital (41).

Cognitive Behavioral Play Therapy (CBPT) combines CBT principles with play therapy, helping young children express and modify maladaptive thoughts in a developmentally appropriate way (42). It uses structured and unstructured play—such as art, puppets, and storytelling—to facilitate problem-solving and emotional expression (43, 44). The playroom setting ensures safety and consistency, allowing observation and guided behavior modification (45). Frequency is typically weekly, with treatment duration depending on progress (46).

Caregiver involvement enhances therapy outcomes by reinforcing behavior management and psychoeducation at home. CBPT modules such as art and puppet therapy strengthen resilience and moral reasoning (43). Metaphors and stories are used to restructure rigid thinking patterns (47). Despite its success, CBT requires motivation, consistency, and emotional readiness, and may not address deeper systemic issues (48, 49).

### **Conclusion**

Hearing loss in children affects communication, education, and emotional well-being. Hearing aid use improves outcomes but is hindered by stigma and psychological barriers. CBT, particularly in its play therapy form, offers effective psychological support by addressing negative beliefs, improving self-esteem, and promoting adaptive behaviors. Integrating CBPT with parental education and inclusive environments enhances both hearing aid adherence and overall child development.

### **References:**

1. Adenji, O. & Kuku, O. (2023): Social adjustment of adolescents with hearing impairment in Nigeria: Will televised aggression and pornographic addiction mediate?. *Specijalna edukacija i rehabilitacija*; 22(1), 1-12.
2. Fortunato, S., Forli, F., Guglielmi, V., De Corso, E., Paludetti, G., Berrettini, S et al., (2016): A review of new insights on the association between hearing loss and cognitive decline in ageing. *Acta Otorhinolaryngologica Italica*;36(3), 155.
3. Kochkin, S., Beck, D. L., Christensen, A. L. A., Medwetsky, L., Northern, J. & Sweetow, R. (2012): *MarkeTrak VIII: Why consumers return hearing aids: A guide for reducing hearing aid returns*. Washington, DC: Better Hearing Institute.
4. Rawool, V. (2018): Denial by patients of hearing loss and their rejection of hearing health care: a review. *journal of hearing science*; 8(3).
5. Henshaw, H. & Ferguson, M. A. (2013): Efficacy of individual computer-based auditory training for people with hearing loss: a systematic review of the evidence. *PloS one*; 8(5), e62836.
6. Barton, S., Zovko, A., Müller, C., Krabichler, Q., Schulze, J., Wagner, S. et al., (2024): A translational neuroscience perspective on loneliness: Narrative review focusing on social interaction, illness and oxytocin. *Neuroscience & Biobehavioral Reviews*; 105734.nc.

7. Mack, D. & LaFrance, C. (2022): Psychological treatment of functional movement disorder. *Functional Movement Disorder Humana*. In: LaFaver, K., Maurer, C., Nicholson, T. & Perez, D. (editors). Cham.pp; 267-290.
8. Geraci, M. & Argento, O. (2022): Cognitive Behavioral Play Therapy (CBPT) and Aggressive Behavior and Conduct Disorders: A Single Case Study. *Presentazione poster EABCT; 2022*, 52th.
9. World Health Organization. (2018). WHO global estimates on prevalence of hearing loss. Retrieved September 25, 2019, from <https://www.who.int/pbd/deafness/estimates/en/>.
10. Torrente, M. C., Tamblay, N., Herrada, J., & Maass, J. C. (2023). Hearing loss in school-aged children. *Acta oto-laryngologica*, 143(1), 28-30.
11. Olusanya, B. O., Neumann, K. J., & Saunders, J. E. (2014). The global burden of disabling hearing impairment: a call to action. *Bulletin of the World Health Organization*, 92, 367-373.
12. de Jong, T. J., van der Schroeff, M. P., Stapersma, L., & Vroegop, J. L. (2024). A systematic review on the impact of auditory functioning and language proficiency on psychosocial difficulties in children and adolescents with hearing loss. *International Journal of Audiology*, 63(9), 675-685
13. Moeller, M. P., & Tomblin, J. B. (2015). An introduction to the outcomes of children with hearing loss study. *Ear and hearing*, 36, 4S-13S.
14. Klinenberg E. Social Isolation, Loneliness, and Living Alone: Identifying the Risks for Public Health. *Am J Public Health*. 2016 May;106(5):786-7. doi: 10.2105/AJPH.2016.303166. PMID: 27049414; PMCID: PMC4985072.
15. Brown, T. H., & Chadha, S. (2024). Ear and hearing health in children. *Paediatrics and Child Health*
16. Okoye O. (2010). Support systems and coping strategies available to physically challenged students in University of Nigeria, Nsukka . Department of Social Work, University of Nigeria, Nsukka, Enugu State, Nigeria. *International Research Journals*, 1(11) 666-67.
17. Freud S. *The Ego and the Id: Standard edition of the complete psychological works of Freud, Vol. XIX*. London, Hogarth Press, 1961.
18. Sindi, A., Hanbazazah, K., Alamoudi, M. M., Al-Harbi, A., Aljuhani, M., & Zawawi, F. (2023). The hearing aid effect in the 2020s: Where do we stand?. *Cureus*, 15(4).
19. Rauterkus, E. P., & Palmer, C. V. (2014). The hearing aid effect in 2013. *Journal of the American Academy of Audiology*, 25(09), 893-903.
20. Marcos-Alonso, S., Almeida-Ayerve, C. N., Monopoli-Roca, C., Coronel-Touma, G. S., Pacheco-Lopez, S., Pena-Navarro, P., ... & Batuecas-Caletrio, A. (2023). Factors impacting the use or rejection of hearing aids—A systematic review and meta-analysis. *Journal of Clinical Medicine*, 12(12), 4030.
21. Wallhagen, M. I. (2010). The stigma of hearing loss. *The gerontologist*, 50(1), 66-75.
22. Kinley, T., Strübel, J., & Amlani, A. (2019). Impression formation of male and female millennial students wearing eye glasses or hearing aids. *Journal of Nonverbal Behavior*, 43(3), 357-379.
23. Cox, L. R., Cooper, W. A., & McDade, H. L. (1989). Teachers' perceptions of adolescent girls who wear hearing aids. *Language, Speech, and Hearing Services in Schools*, 20(4), 372-380.
24. Aazh, H., Prasher, D., Nanchahal, K., & Moore, B. C. (2015). Hearing-aid use and its determinants in the UK National Health Service: a cross-sectional study at the Royal Surrey County Hospital. *International journal of audiology*, 54(3), 152-161.
25. Al-Abduljawad, K. A., & Zakzouk, S. M. (2003, October). The prevalence of sensorineural hearing loss among Saudi children. In *International Congress Series (Vol. 1240, pp. 199-204)*. Elsevier.
26. Agyapong, B., Brett-MacLean, P., Burbuck, L., Agyapong, V. I. O., & Wei, Y. (2023). Interventions to reduce stress and burnout among teachers: A scoping review. *International journal of environmental research and public health*, 20(9), 5625.

27. Mack, J. D., & LaFrance Jr, W. C. (2022). Psychological treatment of functional movement disorder. In *Functional Movement Disorder: An Interdisciplinary Case-Based Approach* (pp. 267-290). Cham: Springer International Publishing.
28. Beck, A. T., Kovacs, M., & Weissman, A. (1979). Assessment of suicidal intention: the Scale for Suicide Ideation. *Journal of consulting and clinical psychology*, 47(2), 343.
29. Lam, D., & Gale, J. (2000). Cognitive behaviour therapy: Teaching a client the ABC model—The first step towards the process of change. *Journal of Advanced Nursing*, 31(2), 444-451.
30. Misje, M., Ask, T., Skouen, J. S., Anderson, B., & Magnussen, L. H. (2024). Body awareness and cognitive behavioral therapy for multisite musculoskeletal pain: patientsexperiences with group rehabilitation. *Physiotherapy theory and practice*, 40(9), 2014-2024.
31. Greimel, K. V., & Kröner-Herwig, B. (2011). Cognitive behavioral treatment (CBT). In *Textbook of tinnitus* (pp. 557-561). New York, NY: Springer New York.
32. Landry, E. C., Sandoval, X. C. R., Simeone, C. N., Tidball, G., Lea, J., & Westerberg, B. D. (2020). Systematic review and network meta-analysis of cognitive and/or behavioral therapies (CBT) for tinnitus. *Otology & Neurotology*, 41(2), 153-166.
33. Czornik, M., Malekshahi, A., Mahmoud, W., Wolpert, S., & Birbaumer, N. (2022). Psychophysiological treatment of chronic tinnitus: A review. *Clinical psychology & psychotherapy*, 29(4), 1236-1253.
34. Yakobi, O., Smilek, D., & Danckert, J. (2021). The effects of mindfulness meditation on attention, executive control and working memory in healthy adults: A meta-analysis of randomized controlled trials. *Cognitive Therapy and Research*, 45(4), 543-560.
35. Altus, D. E., Morris, E. K., & Smith, N. G. (2021). A study in the emergence of applied behavior analysis through the referencing patterns in its founding articles. *European Journal of Behavior Analysis*, 22(1), 101-132.
36. Açıkgöz, S., & Demirbaş, G. (2023). Daily struggles and aspirations: exploring the leisure capabilities of working children and adolescents in Turkey. *Leisure Studies*, 42(3), 462-477.
37. Stallard, P. (2019). *Think good, feel good: A cognitive behavioural therapy workbook for children and young people*. John Wiley & Sons
38. King, B. R., & Boswell, J. F. (2019). Therapeutic strategies and techniques in early cognitive-behavioral therapy. *Psychotherapy*, 56(1), 35.
39. Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of the structure of change. In *Self Change: Social psychological and clinical perspectives* (pp. 87-114). New York, NY: Springer New York.
40. Knell, S. M. (2015). Cognitive-behavioral play therapy. *Handbook of play therapy*, 119-133.
41. Razak, A., Sarpan, S., & Ramlan, R. (2018). Effect of leadership style, motivation and work discipline on employee performance in PT. ABC Makassar. *International Review of Management and Marketing*, 8(6), 67.
42. Drewes, A. A., & Schaefer, C. E. (Eds.). (2017). *Puppet play therapy: a practical guidebook*. Routledge.
43. Darade, A. (2024). Effectiveness of Cognitive Behavioral Play Therapy in Self Esteem, Anxiety and Depression Among Adolescents With Internalizing Behavior (Master's thesis, Central Institute of Psychiatry (India)).
44. Geraci, M. A. (2021). Cognitive behavioral play therapy (CBPT) and emotional dysregulation: a single case study. *Development and Psychopathology*, 14, 945-967
45. Drigas, A., Mitsea, E., & Skianis, C. (2022). Neuro-linguistic programming, positive psychology & VR in special education. *Scientific Electronic Archives*, 15(1).
46. Robinson, G. E., Fernald, R. D., & Clayton, D. F. (2008). Genes and social behavior. *science*, 322(5903), 896-900.
47. Seidi, P. A., Jaff, D., Connolly, S. M., & Hoffart, A. (2021). Applying Cognitive Behavioral Therapy and Thought Field Therapy in Kurdistan region of Iraq: A retrospective case series study of mental-health interventions in a setting of political instability and armed conflicts. *Explore*, 17(1), 84-91.