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Examining Attachment and Parenting Stress in Mothers of Deaf and Hearing Children

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Abstract: This study examined attachment and parenting stress in mothers of deaf and hearing children. Using an ex post facto comparative design, researchers purposively selected 40 mothers—20 with hearing children and 20 with deaf children (aged 2–24 months) diagnosed with severe to profound hearing loss. All participating mothers had normal hearing. Data were collected using the Postpartum Attachment Scale (Condon & Corkindale, 1998) and the Parenting Stress Scale (Berry & Jones, 1995). Multivariate Analysis of Variance (MANOVA) was employed to compare the two groups. The results revealed no significant difference in the quality of mother–child attachment between the two groups. However, a significant difference was observed regarding parenting stress, which was higher in the group of mothers with deaf children. The findings suggest that childhood deafness does not, in isolation, diminish mother–child attachment. Instead, the study highlights that attachment quality is influenced by a complex interplay of factors, including the mother's mental health, the age at which the hearing impairment is diagnosed, and the level of social support received. These results underscore the importance of providing comprehensive support systems for parents of deaf children to mitigate parenting stress and facilitate healthy developmental outcomes.

Keywords: Deafness, Postpartum Attachment, Parenting Stress

Introduction

Hearing is one of the most important senses involved in communication with others. The communication limitations resulting from a child's deafness may affect the quality of the mother–child relationship and potentially disrupt the development of attachment (Khanjani, 2008). Attachment refers to the deep emotional bond formed between a child and their caregiver, which is essential for healthy development. It is considered a universal phenomenon that develops in all humans (Bowlby, 1980). The quality of attachment largely depends on the quality of early interactions between the child and the mother. Numerous studies have emphasized the importance of attachment in individuals' later lives and the crucial role of the mother–child relationship in the formation and development of attachment.

While the mother–child relationship plays a central role in attachment formation, this interaction may be disrupted in mothers of deaf children. Research indicates that most parents of deaf children have normal hearing. These parents often lack experience in communicating effectively with their child, which can lead to feelings of frustration and rejection in the mother–child relationship and may negatively affect attachment (Hallahan, 2013; Lederberg & Mobley, 1990).

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Due to the importance of attachment, several studies have examined the impact of deafness on attachment, though their findings have been inconsistent. Some studies, including those by Lederberg and Mobley (1990), reported that hearing loss and limitations in verbal communication do not significantly affect the development of attachment and that attachment can form independently of verbal interaction. In contrast, other studies suggest that multiple factors influence attachment, including hearing ability, which facilitates a communication channel between mother and child. Because deaf children lack this channel, deafness may influence attachment formation (Geraldine, 2012).

According to Anat et al. (2016), communication difficulties and parenting challenges in interactions with deaf children can reduce parents' sense of competence in parenting and weaken coping skills, particularly among mothers. These factors can contribute to increased parenting stress. The birth of a deaf child may place psychological and financial strain on parents. Parents who had envisioned certain expectations and goals for their child's future may experience disappointment following the birth of a deaf child. In addition, caring for a deaf child typically requires greater financial resources and specialized care compared with raising a hearing child, which can further increase parental pressure (Hallahan & Kauffman, 1999).

Having a child with hearing impairment also requires additional time and attention for rehabilitation and intervention services, which may create anxiety and tension within the family. Among family members, mothers often play the primary role in childrearing and caregiving, resulting in more frequent interaction with the child than other family members. Consequently, mothers of deaf children may experience higher levels of stress and tension (Mollaei & Parand, 2011). Various studies, including Akbari et al. (2010), comparing stress levels among mothers of deaf and hearing children have shown that mothers of deaf children experience greater levels of intra-family, financial, and parenting-related stress.

Given that mothers of deaf children often experience higher levels of psychological pressure and stress compared with mothers of hearing children, deafness may be considered a contributing factor to increased parenting stress (Vaughn, Egeland, Sroufe, & Waters, 1979).

According to Bowlby (1988), the foundation of attachment is established during early childhood through the initial mother–child relationship. Considering the importance of attachment and parenting stress during the early years of life and their significant impact on personality development and future mental health, as well as the inconsistent findings in previous studies, the present research examines attachment and parenting stress among mothers of deaf children under the age of two. Therefore, the main research question of this study is whether there are differences in attachment and parenting stress between mothers of deaf and hearing children.

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Material and Methods

The present study aimed to examine postpartum attachment and parenting stress in mothers of deaf and hearing children under the age of two. Accordingly, an ex post facto comparative research design was employed. To control for potential confounding variables, relevant clinical and medical information was also collected from participants.

Population and Sample

The study population consisted of mothers of deaf and hearing children. Participants were selected based on specific inclusion criteria from the Cochlear Implant Center of Rasoul Akram Hospital in Tehran and Shafa Hospital in Kerman, both of which provided clinical and rehabilitation services during the winter of 2019.

Inclusion Criteria:

1. Having a deaf child aged 3–24 months
2. Diagnosis of severe to profound hearing loss
3. Parents with normal hearing
4. Absence of additional developmental delays or disabilities in the child

Research Instruments

Several established methods for assessing attachment were evaluated. The Strange Situation Procedure could not be used due to practical limitations, including the unavailability of a controlled observation room with one-way mirrors or cameras, as well as time constraints. Other methods such as the Q-set, attachment assessments for middle childhood, or projective drawing techniques were not suitable for children under two years of age. Prior research (e.g., Marschack, 1993) has also shown that certain observational methods are inappropriate for assessing attachment in deaf children because the lack of auditory input may produce atypical behaviors in these settings. Therefore, the Postpartum Attachment Scale was selected due to its ease of administration and suitability for infants under two years old.

To assess parenting stress, the Parenting Stress Scale by Berry and Jones was chosen because it is specifically designed to measure stress in parents of children with disabilities, unlike other tools designed for parents of typically developing or premature infants.

a) Postpartum Attachment Scale (MPAS)

Developed by Condon and Corkindale (1998), this 19-item scale measures mother–infant attachment during the first eight months of life. It includes three subscales: *quality of attachment*, *absence of hostility*, and *pleasure in interaction*. Items are rated by mothers using response formats ranging from two to five options. Eight items are reverse-scored. Total scores range from 19 to 95, with higher scores

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indicating stronger attachment. Condon and Corkindale reported an internal consistency of 0.78 and test-retest reliability of 0.86. The MPAS has also been translated into Dutch, Spanish, and Portuguese.

b) Parenting Stress Scale (Berry & Jones, 1995)

This 18-item scale, translated into Persian and validated by Hassanzadeh (2012), assesses stress experienced by parents of children with disabilities, chronic illnesses, or behavioral problems. Items reflect both positive and negative aspects of parenting and are rated on a five-point Likert scale from "strongly disagree" to "strongly agree." Eight items are reverse-scored. Scores range from 18 to 90, with higher scores indicating greater parenting stress. Berry and Jones reported internal consistency and test-retest reliability coefficients of 0.83 and 0.80, respectively. Validation procedures included discriminant, concurrent, and construct validity assessments, with Cronbach's alpha coefficients above 0.78 across subscales, indicating strong internal consistency. The scale's brevity is an additional advantage, increasing its practicality for parents.

Results

This section presents the results of the between-subjects effects test comparing attachment and parenting stress between mothers of deaf and hearing children.

The results for the attachment variable yielded an F value of 0.405 with a significance level greater than 0.05 ($p>0.05$). Given the lack of statistical significance, it is concluded that there is no significant difference between the attachment scores of mothers of deaf children ($\bar{X}=80.88$) and mothers of hearing children ($\bar{X}=81.87$).

Conversely, the F value for the parenting stress variable was 27.741, with a significance level smaller than 0.01 ($p<0.01$). Based on this significant result, it is concluded that there is a significant difference in parenting stress between the two groups. A comparison of the mean scores indicates that mothers of deaf children experience higher levels of parenting stress ($\bar{X}=39.55$) compared to mothers of hearing children ($\bar{X}=27.20$).

Table 1. Results of Multivariate Tests

Test effect	Values	F	Effect df	Error df	Significance level	Effect size
Pillai's trace effect	0.612	29.161	2	37	0.0001	0.612
Wilks' lambda	0.388	29.161	2	37	0.0001	0.612

Table 2. Results of Between-Subjects Effects Test

Variable	Source	Sum of squares	df	Mean square	F	Significance level	Effect size
Attachment	Between groups	9.801	1	9.801	0.563	0.458	0.015
Stress	Between groups	1525.225	1	1525.225	54.981	0.0001	0.591

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Since the significance levels for all multivariate tests (Pillai's Trace, Wilks' Lambda, etc.) were 0.0001 (less than 0.01), we conclude that there is a statistically significant difference between the two groups in at least one of the variables (attachment or parenting stress). Furthermore, the effect size (0.612) indicates that approximately 61% of the observed variance is attributable to the group variable (child's deafness).

Table 3. Comparison of Attachment and Parenting Stress in Two Groups

Variable	Mean (Hearing-Impaired)	Mean (Normal)	F value	P-value
Attachment	80.88	81.87	17.405	> 0.5
Parenting Stress	299.55	270.20	27.741	< 0.1

Specifically:

1. **Attachment:** The significance level (0.458) is greater than 0.05; therefore, no significant difference exists between the two groups regarding attachment levels (the null hypothesis is rejected). The negligible effect size (0.015) further confirms this finding.
2. **Parenting Stress:** The F value is 54.981 with a significance level of less than 0.01 (0.001), indicating a highly significant difference between the groups. The effect size (0.591) shows that 59% of the variance in parenting stress is explained by the group variable (child's deafness).

Discussion

The statistical analyses conducted to test the hypothesis regarding differences in postpartum attachment between deaf and hearing children indicated that attachment in deaf children was similar to that observed in hearing children. This finding contradicts the initial hypothesis of the study, which assumed that deaf children—due to impairment in hearing, a key sense involved in communication with the mother—would differ from hearing children in terms of attachment.

These findings are consistent with the perspective of Pringle (1980), who argued that deaf children are emotionally and intellectually comparable to hearing children. The primary difference lies in the fact that deaf children may require greater effort, understanding, and support from parents in order to reach similar emotional and cognitive developmental levels.

Several explanations may account for the findings of the present study. First, as noted earlier, Bowlby (1982) suggested that attachment behaviors are often activated in situations involving illness, stress, or vulnerability. Deafness may create such conditions, thereby intensifying attachment behaviors toward the mother and increasing the child's need for parental support. Second, the similarity in attachment levels between deaf and hearing children may be explained by the increased attention given by parents to their deaf child. Feelings of guilt or responsibility may

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lead parents to respond more sensitively to the child's needs, potentially promoting normal attachment development. In this regard, Pringle (1980) suggested that mothers of deaf children may be more responsive and sensitive to their child's needs due to feelings of guilt, which can facilitate the child's emotional adjustment (as cited in Jafari, 2010).

Other factors may also explain the absence of differences between the two groups. The children in the present study were under two years of age. Since attachment formation continues to develop until approximately five years of age, the young age of the participants may have limited the detection of differences. Additionally, attachment was measured only through questionnaires, and direct observation of mother–child interaction was not conducted. Consequently, it is possible that mothers' perceptions influenced their responses, potentially intertwining maternal feelings with reported attachment levels. This methodological limitation may also explain the lack of observed differences.

The findings of the present study are consistent with research by Hallahan (2012), who examined the development of mother–child attachment in deaf toddlers and the effect of the age of diagnosis on attachment development. Hallahan reported that attachment development in deaf children can follow a typical developmental trajectory, although earlier diagnosis of hearing impairment is associated with more favorable attachment outcomes. Similarly, Lederberg and Mobley (1990) examined the impact of hearing impairment on attachment quality and mother–child interaction, finding that the development of secure attachment and a positive mother–child relationship during early childhood is not dependent on verbal communication. These findings align with the results of the present study.

However, some previous studies have reported different results. Thompson et al. (2007) investigated attachment between deaf infants and their mothers and concluded that deafness can influence attachment development. Nevertheless, they emphasized that deafness should not be considered the sole determinant; environmental, social, and familial factors also play important roles. Similarly, Geraldine Monina (2012) examined the impact of profound deafness on attachment formation between deaf infants and hearing mothers. She argued that because fetal hearing begins to develop around the 24th week of pregnancy—facilitating early mother–child communication—deaf infants may be deprived of this communication channel, which could negatively affect attachment formation. These findings are inconsistent with the results of the present study. Additionally, Khanjani (2008), in a study investigating the role of sensory impairments in attachment styles and behavioral problems among children aged 6–7 years, reported that deaf children are more at risk for

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insecure attachment compared with hearing children, although blind children appeared to be in a relatively better condition in this regard.

One limitation of the present study was the limited cooperation of some parents, many of whom had only recently become aware of their child's hearing loss and were experiencing anxiety and concern, which made data collection more difficult. Future research is therefore recommended to include larger sample sizes in order to obtain more comprehensive findings.

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