Stress and Depression: A Pre and Post Cochlear Implant Comparative Study

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Abstract

Parents of children with hearing impairment tend to exhibit “depression” a known stress related response. Mothers of hearing impaired child are more prone than fathers to experience depression [1,2]. In addition, these mothers are found to be less successful in cultivating language and psychological development of their children. The study aimed to measure pre and post cochlear implantation (CI) levels of maternal stress and depression. Total of 5 mothers were supplied with Parental Stress Scale (PSS) and Centre for Epidemiologic studies Depression Scale (CESD) adapted in Kannada Language pre and post CI of their children. Wilcoxon Signed Ranks test was applied to the obtained data. No significant difference in mean levels of stress and depression pre and post CI (p<0.05) was observed. The results provide preliminary evidence that mothers of children with hearing impairment experience higher levels of stress and depression.

Keywords: Cochlear implant; Stress; Depression

Introduction

Parents dream their child to share and enjoy access to the full array of life options. Hearing impairment is an invisible handicap. Parents, giving birth to hearing impaired child are unaware of the child’s hearing impairment. Hearing impairment if not identified and rehabilitated/habilitated in the early days of life, can hamper the speech, language and communication abilities of a child in comparison to a hearing peer group. Labelling the child with hearing impairment leads to an emotional catastrophe in the life of parents. Most common reactions by parent to the labelled diagnosis include guilt and anger, helplessness, feeling of grief, a sense of isolation in parent-child relation with central role to human communication [3].

A series of emotional stages mount upon labelling their child with hearing impairment. Literature reports three main stages in parental response. (a) Premature expression of anger towards the professional who labelled the child with hearing impairment. (b) Succeeding expression of anger on their child as they find it hard to deny the continued existence of hearing impairment. (c) Alteration of emotions from sadness & anger to progress of adaptation and coping behaviours in accepting the hearing impaired child [4]. Altering degrees of grief, anger and worry are associated with adjustment of the child with disability [5]. The task of parenting becomes challenging when the option of amplification is introduced to the hearing impaired child. Today, more technological options are availed to the children with profound hearing loss, thereby, having an access to better speech and language development skills. Cochlear implants have gained its importance in children with severe to profound hearing loss [6].

The gradual increase in use of cochlear implants has developed a curiosity in the researchers to know the superiority of cochlear implant over other amplification devices. Maternal stress and depression is researched upon as it is considered as a factor towards rehabilitation of hearing impaired children.

Need for the study

Successful declaration of parental anger and grief at labelling of child is crucial, as these emotions may manifest as depression. Childs outcome in all modalities can be negatively affected due to depression. Mothers with depression are found to be less sensitive to their child’s needs, nurturing language and psycho-social development. Mothers of children with disability experience more stress associated to parenting in comparison to parents with children without disabilities [7]. Children with hearing impairment are more susceptible to the impact of
maternal depression as they specifically rely on the maternal care and emotional responsiveness [8]. Positive self esteem of the parents especially the mother plays a key role in the child’s success and thus clinical endeavours should emphasise on building the parents self confidence and self esteem [9].

Better developed emotional sensitivity, reading competence, and problem-solving behaviour of the child is observed when mothers with hearing impaired children acquire strategies to cope up with hearing impairment of the child [10]. There has been a positive influence of the language development of hearing impaired child when particularly mothers showed a positive emotional feeling. Hence, there becomes a need to carry out a study revealing the contribution of maternal expectations and related stress and depression pre and post CI of the hearing impaired child.

A. Aim: To measure and compare pre and post CI maternal stress and depression levels.

B. Method:

a) Participants: A total of 5 mothers of hearing impaired children (severe to profound hearing loss) within age range of 20-35 years were recruited for the study. This study was carried out in Speech and Hearing Institute, Mangalore where the children of these mothers attended regular invention program. The inclusion criteria formed of children bearing severe to profound hearing loss in the age range of 3-7 years. Mothers with minimum educational qualification of 10th grade and surviving children of these mothers attended regular invention program. Post CI included time duration of 1 month after surgery. Incompletely furnished scales and questionnaires were discarded. The collected data was recruited to the statistical analysis. The obtained results are mentioned below. There was no significant difference in levels of stress and depression pre and post CI (p<0.05) on the mean scores (Table 1). Stress and depression among the parents of children with CI is not inevitable. It moulds the family system. The current study results revealed higher levels of stress and depression pre CI in comparison to post CI. However, the scores obtained did not show any significant difference between pre and post CI.

Table 1: Mean, standard deviation and Z value for the stress and depression experienced by the mothers of CI child.

| Variable               | Group | SD          |
|------------------------|-------|-------------|
| Life stress Pre CI     | 55.2  | 8.04        |
| Life stress Post CI    | 54    | 8.68        |
| Depression Pre CI      | 28.4  | 15.1        |
| Depression Post CI     | 17.8  | 6.68        |

The data obtained using PSS and CESD underwent statistical analysis. The obtained results are mentioned below. There was no significant difference in levels of stress and depression pre and post CI (p<0.05) on the mean scores (Table 1). Stress and depression among the parents of children with CI is not inevitable. It moulds the family system. The current study results revealed higher levels of stress and depression pre CI in comparison to post CI. However, the scores obtained did not show any significant difference between pre and post CI.

A cochlear implant provides the subject an access to hear various sounds which he/her may not have heard [13]. Lesser levels of stress and depression indicate better performance of cochlear implant users and it can be associated to their mothers. This can be attributed to the findings of Francis, Koch, Wyatt and Niparla [14] which revealed, higher performance in children using cochlear implant in comparison to the hearing aid users. Mothers of children with severe to profound hearing loss tend to exhibit higher levels of stress and depression, anger and anxiety in comparison to the mothers of normal hearing children.
Parents with hearing impaired children are put up with pressures associated with everyday difficulties incorporating verbal communication and educational problems, costs of rehabilitation of CI. This together with problems faced by children in society increases parental stress. Similarly, lower socioeconomic status of the family requires family support and adjustment to the financial constraints in the family [10]. The mothers would have undergone related stress levels in coping with isolation, depression and family support. Moreover, the financial constraints on maintenance of the cochlear implant, the device used pre CI and the ongoing rehabilitation program would have imposed several maternal expectations under the influence of stress and depression.

The current study imposed on highlighting the psychological aspects of mothers who have to be considered by the rehabilitative specialist of the child. The presence of higher levels of maternal stress and depression may hinder the parent child relation and in turn impact developmental and educational outcomes of the child. The study highlights the need to start the family based intervention program to boost the parents with children having HL. Similarly, stress and depression may alter the quality of life of the mother as well as the child. Hence, it is the responsibility of the Audiologist and Speech Language Pathologist to build up self esteem and confidence of the parents with HI children.

**Conclusion**

The current study measured and compared maternal expectations, stress and depression in mothers with children with CI. Findings of the study did not show significant difference in levels of stress and depression pre and post CI. However, the considered subject size was relatively small and other family members levels of stress and depression have not been considered. Thus, it calls for the next research to incorporate large subject group comprising of various subjects related the hearing impaired child.

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