Parental Stress and Coping Strategies in Mothers of Children with Cochlear Implant

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Abstract
Children with hearing problems usually suffer from psychological problems that extend to their families. In Algeria, it is believed that children with cochlear implants is increasing. The aim of this research is to highlight the parenting stress in mothers of children with cochlear implants as well as to identify the coping strategies used to reduce this stress. This research also studies the effects of years of cochlear implant as well as the effects of mother's working state. For this purpose, both the parental stress scale and the coping strategy scale have been applied to a sample of 94 mothers of children with cochlear implantation in a number of the states of Algeria. It was found that the mothers of children with cochlear implants suffer from a high level of parental stress. The mothers of children with cochlear implants resort to multiple coping strategies to deal with parental stress. The study also found that there are no differences in the level of parental stress among mothers of children who have benefited from cochlear implantation for less than 3 years and mothers of children who have benefited from it for more than 3 years of implantation. Finally, It was found that there are differences in Parenting stress level in both working mothers of children with cochlear implants and non-working mothers.

Keywords: Parental stress, Algerian mothers, Children with cochlear implant, Coping strategies

Introduction

The stressful situations take a big part of life of any one of us. The vulnerability of individuals to psychological stress varies according to the duties imposed by their daily lives. Parents have a large share of the stress in the family because of their primary responsibility for raising their children. Merely assuming the role of parenting causes a significant degree of stress, especially when the child is young (Cronin, et al. 2015). Parenting stress is a set of processes that lead to repulsive psychological and physiological reactions that arise from attempts to adapt to parental role requirements (Deater-Deckard, 1998). This is a negative experience of the parent's feelings towards himself and his child (Eg, food, welfare, attention) or because of the need to reconcile his needs with the needs of the child, or because of the general social stress associated with the child long-term growth and well-being (Cronin, et al. 2015).

The role of the mothers differs from that of the fathers in parenting and in interaction with their child. Koegel et al. (1992) suggested that mothers suffer more than fathers from parenting stress, and found that the level of parenting stress correlates with parent-specific responsibilities during parenting. Baker and Heller (1996) found that mothers care about the smallest indicators of behavioral and emotional problems of their children While parents only care about them when they become more serious (Deater-Deckard, 2004).

If the mother of a healthy child is susceptible to parenting stress, the disabled child will inevitably be a source of great degree of parenting stress on his mother, since he requires her to devote more time and care to him than the healthy child. The study of Singer and Farkas (1989) indicates that mothers of children with disabilities suffer from a high degree of stress from multiple sources, the most important of which are the physical burdens and tiredness and exhaustion resulting from meeting the needs of the disabled child and raising him, the mother having to devote full time to caring for her child, As a result of the suffering of the disabled child, and fear for his future.

Cochlear implant is an "electronic device implanted in the inner ear through an operation designed to create sound sensations from an electrical excitation of the endings of the auditory nerve." (Dumont, 1997, p. 12). The period of diagnosis reported by the parents of a child suffering from deep deafness is very difficult, because they have to make a fateful decision on their child to decide whether or not to undergo cochlear implantation (Quittner et al. 2010).The parents of the child who is suffering from cochlear implants have high level of stress immediately after the surgery (0 to 2 years after surgery), but their overall level remains high. (Chen, et al., 2013) not to mention the daily problems that later migrate from cochlear implant and affect the parents' satisfaction with life. Therefore, the parenting stress level in parents of children with cochlear implants is higher than that of the parents of children with hearing-impaired. (Sarant & Garrard, 2013) If we want to focus on the mothers of children with cochlear implant, they inevitably suffer from higher maternal stress than the mothers of both hearing and hearing-impaired children, as Santhi and Prakash (2013) points out in his study. This stress is related to the parenting experiences of these mothers, Marci and Hanson (1990) recognizes a significant relationship between parental stress in mothers and their parental responsibilities. To be able to alleviate or relieve the stress, individual turns to the process of coping. Lazarus and Folkman

(1984) have divided coping strategies into two types: problem focused coping and emotion focused coping. Deckard (2004) reported that most of the definitions of dealing with parenting stress agree to distinguish between problem focused coping versus emotion focused coping and avoidance strategy versus confrontation strategy. However, parents of disabled children resort to broader and more comprehensive strategies as a result of the burden caused by such disability. We have seen a great difference between the results of many studies that dealt with the topic of the coping strategies with parenting stress in parents of disabled children. The study of Van der Veek, Kraaij, and Garnefski (2009) reported that the parents of a child with Down's syndrome resorted to 9 strategies to reduce parenting stress (Self-blame, acceptance, reward, positive reorientation, focus on planning, positive reassessment, perception, amplification, blaming others), while Hastings, et al. (2005) Pointed out that parents of autistic children resorted to four strategies (avoidance, focus on problem, religious denial, positive confrontation).

Through our review of the literature on the subject of parenting stress in mothers of children with cochlear implants, we have obtained three studies; The study of Santhi and Prakash (2013) compared the level of parenting stress among mothers of children with cochlear implants with mothers of children with hearing aids, and the second study of Chen, et al. (2013) also compared the level of parental stress in the mothers of children with cochlear implants during periods of implantation. The third study of Weisel, Most, and Michael (2006) compared the parenting stress level of the mothers of children with cochlear implants during periods (immediately after cochlear implantation, 3 years after cochlear implantation, 3 years after cochlear implantation). Because there is a difference in the results of studies in the question of stability and change in the level of parenting stress through the stages after the period of cochlear implantation, we will take care of this variable. The literature review confirms the stability of parenting stress levels in mothers of children with cochlear implants over time.

In this research, we sought to study the level of parenting stress experienced by the mothers of children with cochlear implants during the periods (3 years before the cochlear implantation and after 3 years of cochlear implantation) as the vocabulary level develops in the healthy child during the period 2-3 years old (Connor, et al. 2006).

Among the tasks that may be added to the mother in the role of parenting is the work that she occupies outside the home. Working mothers suffer from low levels of parenting stress when they can plan their day if they succeed in involving their children and other family members in household tasks, this allows them to enjoy health and reconcile the requirements of both home and work. Because we have obtained only one study in this regard, we will discuss it by comparing the level of parenting stress in both of working and non-working mothers of children with cochlear implants.

Concerning the subject of the coping strategies in mothers of children with cochlear implants, we noted a lack of studies treating this topic. Although a number of them concentrate on the subject of parenting stress in mothers of children with cochlear implants but did not address the strategies of coping with it, as in the study of Weisel, Most and Michael (2006), Marci and Hanson (1990), and Santhi and Prakash (2013).

According to the Anat ZZ (2008) study, the parents of deaf children resort to the social support strategy, as well as this strategy is used by the parents of children with cochlear implants to reduce parenting stress. The study of Asberg, Vogel and Bowers (2008) found that high levels of perceived social support are associated with a low level of parenting stress. In the study of Kobosko (2011) the results differ from those of the previous studies. The results indicate that there is a difference in the degree of strategies of coping with stressful situations between mothers and fathers in both ways of emotion and avoidance, as they were used by mothers more than fathers. This study is the only study, within our limits knowledge, that indicates that the mothers of the children with cochlear implants use other strategies, in contrast to the strategy of social support, which is consistent with most of the studies that dealt with strategies of coping with parenting stress used by parents of disabled children in general when talking about Multiple strategies.

Through literature reviews, we formulate the following research questions:

- What is the level of parenting stress experienced by mothers of children with cochlear implant?
- Are there differences in the level of parenting stress experienced by working and non-working mothers of children with cochlear implant?
- Are there differences in the level of parenting stress among mothers of children who have been benefited by cochlear implantation for less than 3 years and mothers of children who have benefited from it for more than 3 years of implantation?
- Do mothers of children with cochlear implants use multiple strategies to cope with parenting stress?

Method

The study was conducted between 15 February 2018 and 27 June 2018, and was implemented in a number of speech therapist offices in seven states of Algeria: Algiers, Bejaia, Jijel, Tizi Ouzou, Batna, Biskra and Setif. In addition to two special class rooms of children with specifics needs integrate into two normal schools, one in Setif and the other in Batna.

After making sure that the instruments; Parental stress scale (PSS) (Berry, & Jones, 1995), and the coping strategy scale (CSS)(Endler, & Parker, 1990) have good psychometric properties. A factorial analysis with varimax rotation was conducted, the (PSS)'s factorial analysis yielded two factors and the eigen value was 3.45 and 3.19, the two factors explained together 47.48% of the total variance, which is high. As for the reliability of the scale, the internal consistent value for the first factor was 0.70 and for the second factor was 0.78 and for the scale in total was 0.80, it indicates that the reliability coefficient of the first scale is high.

The factorial analysis of the (CSS) scale yielded four factors, with eigen value respectively: 2.93, 2.31, 2.08, and 1.72 with a cumulative percentage of 56.58%, which is high. The value of Cronbach alpha for the first factor was 0.78, for the second factor 0.71, for the third factor of 0.69, for the fourth factor 0.57, and for the total scale was 0.71, it indicated that the second scale (CSS) have a good internal consistency.

In order to examine the first and fourth hypotheses we have based on the descriptive statistics. For the second and third hypotheses, we used the compare means, specifically the T test for two independent samples.

Results

The results of the first research question (What is the level of parenting stress experienced by mothers of children with cochlear implant?) indicate that:
The average level of parenting stress for mothers of children with cochlear implants is ($x = 57,35$, $p < 0.05$) that the lowest value of these stress is 28, while the highest value is 70 and the standard deviation ($x=8, 97$, $p < 0.05$).

The results of the second research question, (Are there differences in the level of parenting stress experienced by working and non-working mothers of children with cochlear implant?) indicate that:
There is a difference between the average level of parenting stress obtained by the mothers of children who have benefited from cochlear implantation for less than 3 years and the mothers of children who have benefited from cochlear implantation for more than 3 years. The median of the first group ($M = 55.83$) While the median of the second group ($M=59,41$) ($f=0.06$, $p<0.05$).

The value of the Livini test is estimated at 4.43 and at a significance level of 0.04. Since ($F = 4.43$, $p<0.05$) the two samples are not uniform ($t = 1.92$, $p<0.05$), so the difference between the two groups is not statistically significant. Thus, we can say that the research question H0, which states that there are no differences in the level of parenting stress between the mothers of children who have benefited from cochlear implantation for less than 3 years and the mothers of children who have benefited from cochlear implantation for more than 3 years has been achieved.

The results of the third research question, (Are there differences in the level of parenting stress among mothers of children who have been benefited by cochlear implantation for less than 3 years and mothers of children who have benefited from it for more than 3 years of implantation?) are shown in the Figure (1).

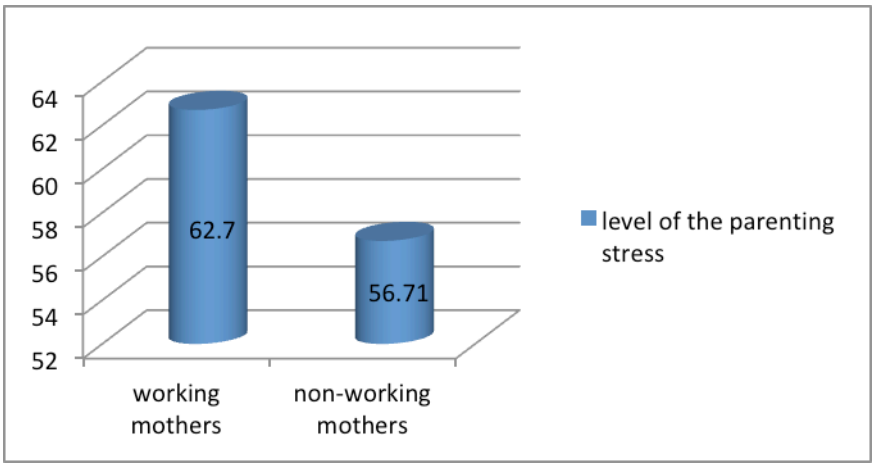

Figure 1: The level of parenting stress in working and non-working mothers

There is a difference between the average level of parenting stress obtained by working and non-working mothers of children with cochlear implantation. The median of the first group was 62.70 while the median of the second group was 56,71. The value of the Livini test is 0.2 and at a 0.65 level. (t =2.02, p <0.05), the difference between the two groups is statistically significant and is in favor of the highest mean (62.70) working mothers. Thus, we can say that the alternative research question H1, which states that there are differences in the level of parenting stress experienced by working and non-working mothers of children with cochlear implants have been achieved.

The results of the fourth research question, (Do mothers of children with cochlear implants use multiple strategies to cope with parenting stress?) are shown in Table (1).

Table 1: Descriptive statistic and z scores of the strategies of coping

	M	SD	Z scores
Strategy problem focused coping	23.12	4	0.03
Strategy self- blame coping	9.09	3.34	0.28-
Strategy avoidance coping	9.34	3.08	0.14-
Coping strategy emotion focused	9.47	2.96	0.27-

The z scores are to the t scores, as shown in Figure 2.

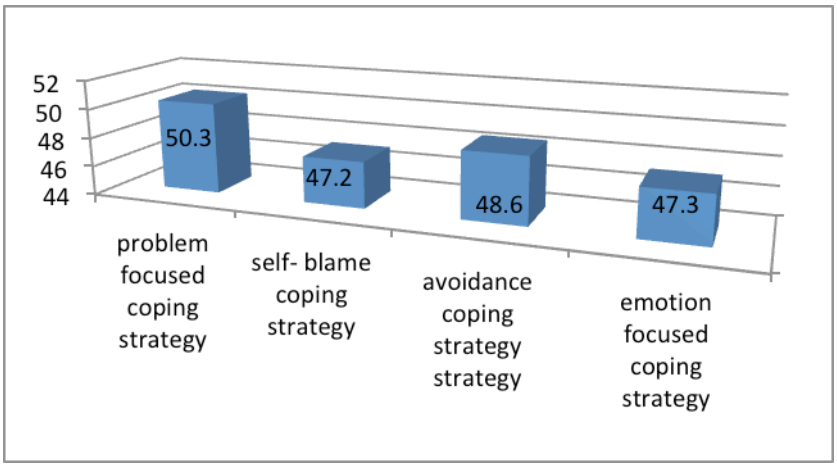

Figure 2: The t score of the strategies of coping with parenting stress in mothers of children with cochlear implants.

It is shown through the Figure (2) that the strategy most commonly used by the research sample is the problem focused coping strategy, followed by the avoidance-coping strategy and then both self-blame and emotion-focused coping strategies and at two levels.

Discussion

The mothers of children with cochlear implants suffer from high-level of parenting stress we interpret this increase by a number of reasons, beginning with the stage of detection and diagnosis of deafness:

- Detecting and diagnosing deafness is the first stressful situation tested by the mother, especially for the hearing-impaired parents, since the diagnosis of hearing loss in their child is the most difficult the times they go. (Santhi & Prakash, 2013), confirmed by Quittner, et al. (2010)
- After the diagnosis of deafness, comes the diagnosis of cochlear implantation. This period, which is told by the parents of a child suffering from deep deafness, is very difficult because they have to make a fateful decision in their son's right to decide whether to perform cochlear implantation (Quittner, et al. 2010)
- This decision follows a number of situations that drain many of the potential of the mother, as it entails subjecting the child to a range of medical tests, psychological and linguistic as well as hearing measurement.
- The most difficult period to be carried by the mother is the period of surgery to which the child undergoes to implant the inner part of the ear and the mother's fears.
- After these stages, comes the period of hospitalization for the child, which is accompanied by the mother often, which requires the latter vigilance more than usual.
- The above tests are re-applied within the framework in order to assess the new child's abilities. Psychological and speech therapy sessions should be followed immediately. All of these commitments put stress on the mother because she becomes restricted by attending specific times of Psychological and speech therapy sessions. This responsibility lies with the mother on the grounds that the father is more closely connected to his work, as well as the responsibility to review the exercises that take place during Psychological and speech therapy sessions.
- Add to these stressful situations the scarcity of special educational services, where children with cochlear implants at the level of the State of Setif, for example, are taught in a partially integrated section of a normal school that does not have the minimum necessary integration requirements.

In its interpretation of this high level of parenting stress, we refer to the safety factor of the cochlear implant and the need to protect it from damage.

In addition to this number of factors contributing to raising the level of parenting stress among the mothers of children with cochlear implant, the lack of programs to reduce the parenting stress in mothers of children with cochlear implantation remains a key factor in explaining their high level.

All of these factors are sources of stress on the mother and if met some or all, it will increase the stress.

There are no differences in the level of parenting stress between the mothers of children who have benefited from cochlear implantation for less than 3 years and mothers of children who have benefited from it for more than 3 years of implantation.

The level of parenting stress in both groups is high as it exceeds 38 according to the (ESP-AL) scale. These results differ with Chen, et al. (2013) study's but the results of our study are similar to the results of the Weisel et al. (2006), in which the level of parenting stress remained constant and did not change until 3 years after the implantation. Despite the fact that mothers pass a number of factors leading to increased parenting stress after 3 years of cochlear implantation (deafness detection, degree of the disability, cochlear implantation, surgery and hospitalization) and even with the progress made by these mothers' children in verbal communication thanks to

cochlear implantation after 3 years of use, they continued to suffer from a high level of parenting stress. In interpreting these results, we focus on the factor of the fear, the mothers of children with cochlear implants fear for his academic achievement, in addition to the fact that the requirements of any child increases with age.

There is a difference in the level of parenting stress among the working mothers of children with cochlear implants and non-working.

We interpret these results by the fact that the work adds to the responsibility of reconciling work and education with domestic and family duties in general. The results of this study are consistent with the results found by Nomaguchi and House (2013), these findings are also consistent with Trembley (2006) studies as sited in Deater-Deckard (2004) which indicate that most of parents who combine work and family life feel stressed. The study of Caussignac (2000) also indicates that the parents of children under 5 years of age are told more stress accompanied by time constraints to achieve their role in work and parental role as well as doubles role.

The mothers of children who benefit from cochlear implants resort to multiple strategies to cope with parenting stress.

The results of the (CSS) scale in the four subscales indicate that the mothers of children using cochlear implants resort to four strategies to reduce the parenting stress. The first of these strategies in terms of order are:

- Problem focused coping strategies: In such situations, mothers resort to multiple cognitive efforts to find holistic or partial solutions that reduce their feeling of stress. For example, consider intensifying the child's psychological and speech therapy sessions in order to speed up the process of acquiring language or thinking about mobility and stability nearby From the hospital that is responsible for the implantation process in order to save the effort, time and money instead of moving to it repeatedly during and after the operation period, especially (in order to practice the psychological and speech therapy sessions) This strategy is part of problem focused coping strategies (Kobosko, 2011)
- Self-blame focused coping strategies: often observed in mothers of children with congenital disabilities, where the mother adheres to the design of her child, thinking that she has failed to pay attention to him during the embryonic stage. This strategy can also be observed if this deafness has been acquired spontaneously and has occurred due to postpartum infections, such as a child's fever or an accident, for example, where mothers will blame themselves. Through the contact with the mothers of the children who benefit from cochlear implantation, they often resort to this strategy.
- The strategy avoidance: The mothers resort to this strategy to ignore some sources of parenting stress, such as ignoring the low level of the child, for example, in order to maintain the emotional balance by shopping time. Studies confirm that mothers of children with cochlear implants resort to this strategy. Kobosko (2011).
- Emotional focused coping strategy: In this type, mothers tend to use their feelings, which are easier for any of us to observe. Among the studies that indicate that the mothers of children who benefit from cochlear implants resort to such a strategy is Kobosko (2011).

Conclusion

We concludes from this study that the mothers of children with cochlear implants suffer from high levels of parenting stress, which is not different between the mothers of children who have benefited from cochlear implantation for more than three years of implantation and the mothers of children who have benefited from cochlear implantation for less than three years of implantation, But it is higher among mothers of children with cochlear implantation compared to non-working mothers. We also conclude that mothers of children with cochlear implants resort to four strategies to cope with parenting stress (problem-focused coping strategy, self-blame-focused coping strategy, avoidance coping strategy, emotion focused coping strategy). The student interprets the four strategies in each study's results. The mother turns to a particular strategy depending on the situation in which she lives. If it is difficult to control a situation by evaluating it as a midwife

For change, it is impossible to resort to a problem focused coping strategy, and then resort to coping strategies focused on emotion, avoidance and self-blame. (David Sander, 2009). Since problem focused and emotion coping strategies are interrelated and can not be separated, their effectiveness relates to the circumstances in which they occur because they are connected. In the same situation, a mother can resort to one time, another time, or both during the same situation. The fact that mothers resort to all these strategies together means that they do not tend to use a single type.

By linking to the results of the first research question with the results of the third, we note that the use of these strategies is associated with a high level of parenting stress. Therefore, we suggest that resorting to these four strategies together - in the sense of intertwining may be the reason for the high level of parenting stress during these situations (Care and education of a child benefiting from cochlear implantation). Deater-Deckard (2004) finds that the parent may use several strategies at the same time while coping with parenting stress, which either improves the adjustment or makes it worse depending on the situation. In our interpretation of the failure of these strategies to reduce the parenting stress suffered by mothers of children with cochlear implantation, we add other factors - in addition to the mother's position of caring for and raising a child with cochlear implantation:

- The personal and cultural factors of the mother (ex. the educational level)
- The extent to which the mother has benefited from psychological programs that seek to reduce parenting stress. We believe that this type of program is not within the scope of what we have seen, whether in terms of Algerian studies in particular or through our contact with practicing psychologists and speech therapist. Deater-Deckard (2004) also emphasizes these factors. The failure of diversity of strategies is due to other factors. In addition to the situation itself, the parent believes that the more diverse the parent is, the more effectively he can be employed. However, there are many personal obstacles and cultural situation in resorting to a strategy Among the other strategies, in addition to all of these, these strategies used by the father to cope with inadequate, which requires intervention by specialists.

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