

Behavioral Modification Methods and Maternal Parenting Styles among Mothers with Hearing-Impaired Children

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Abstract

Introduction: The present study aimed to investigate the effect of behavioral parent training of mothers with severe deaf children, on enhancing maternal parenting style.

Method: The research design was an experimental study with a pre-test, post-test and a control group. The research population included all mothers with severe hearing loss children. So, 24 mothers whose children had the most severe hearing loss were selected as the main sample in the academic year of 2015 in Azna city, Iran. Then, they were placed into experimental and control groups after being matched based on age, educational level, and socioeconomic status. The research tool included the Child Behavior Checklist-Persian Version (CBCL) and the Parenting Styles and Dimensions Questionnaire (PSDQ). The parental behavior training was performed in nine 90-minute sessions in the experimental group. The data were analyzed by multivariable analysis of covariance.

Results: Findings revealed the effect of behavioral parental training on reducing authoritarian and permissive parenting styles of mothers with deaf children in the experimental group. Moreover, behavioral parent training enhanced maternal authority parenting style score in the experimental group [$P < 0.05$].

Conclusion: Behavioral parent training is important in decreasing negative parenting styles and in enhancing positive interaction between parents and deaf children.

Keywords: Deafness, Behavioral Parent Training, Parenting Styles

Introduction

Previous studies have shown that seven people in every 1000 patients are suffering from severe to profound hearing loss [1] and one in 750 (more than 40 decibel) children are suffering from a bilateral hearing loss [2]. Severe and profound hearing loss have adverse consequences in communication, cognitive and social-emotional growth [3]. However, the type and severity of the effects depends on factors such as behavioral problems, the rate of hearing loss, auditory performance with hearing aids or cochlear implants, double disability, parent resources, and educational efforts [4].

Emotional and behavioral problems are one of the negative growing consequences that many families with deaf children and adolescent are faced [5-6]. It has been proven that behavioral problems in hearing-impaired children and adolescent with emotional problems

is more common [4]. Wallis et al. reported that 12.3% of hearing-impaired children and adolescent were on the verge of a behavioral disorder, and 29.8% had a conduct disorder, while 3.19% of emotional disorders was on the verge of the disorder and 17.5% had clinical disorder [7]. One of the effective factors in behavioral problems especially externalized behaviors in all children particularly deaf children are the behaviors related to interactive practices and parenting styles [8]. These methods have significant impacts on the evolution of the children in childhood and also personality traits and their subsequent behavior [9].

Previous studies investigating the relationship between normal mothers and hearing-impaired children were so strict and also used positive, restrictive and interventional procedures in their training methods. The results have shown that this type of interaction will intensify the problems of the hearing-impaired children in long term [10]. Other studies have also suggested that the parents of hearing-impaired children use more of corporal punishment in relation to their children [11]. For example, it has been demonstrated that the hearing loss children with behavioral problems are mainly from families with disabilities to communicate with their children. Fellingner et al., reported that the hearing-impaired children who had been unable to find their place in their family had more mental health problems compared to children who were well able to communicate with family members [5]. Hintermair reported higher psychological adjustment and higher life quality for the hearing-impaired children with nice relationships in their family [8].

The findings imply that child abuse is one of the reasons for behavioral problems such as externalized behaviors like aggression and refusal of the partners' orders. It is implied that deaf children probably experience parenting methods based on excessive and corporal punishment compared to other children [5, 12]. Parents of deaf children suffer from psychological problems such as depression, stress and issues related to the stresses of disability for the children [13]. It is been shown that parents' psychological problems can influence their contact and training styles in relation to their children and also results in the prevalence of domestic abuse [14]. Therefore, psychological interventions seem to be crucial for parents raising hearing-impaired children who are at risk for behavioral problems. Behavioral Parent Training (BPT) courses are helpful tools to improve parenting methods and consequently promote desirable behaviors in children with disabilities [15]. BPT teaches them how to change their children's behavior by knowing the circumstances and consequences of their inappropriate behaviors, methods of monitoring such behaviors, ignoring the behavioral problems, and punishment methods based on deprivation without physical approaches. It also focuses on encouraging appropriate behaviors by attention, verbal encouragement, and rewards that will lead to desired results [16,17].

One method for BPT is the Barkley's parent education program. This program is based on the principles of social learning and teaches parents how to recognize the

circumstances and consequences of inappropriate behavior of their children, targeting and monitoring such behaviors, deliberate and planned ignorance, temporary banning and other non-physical techniques without corporal punishment, modifying the behavior of their children, reinforcing appropriate behavior by attention, verbal encouragement and rewards to achieve desirable behaviors [18, 19].

behavioral interventions generally support the growth and psychological well-being of parents and their child by helping parents [20]. There are clear pieces of evidences that parents' psychological problems and their inappropriate training styles lead to negative effects on their child's psychological situation as well as their well-being. The severity of such effects on children's behavior and the quality of parent-child relationships is not quiet clear. The main aid and supporting factor is to prevent behavioral problems and to re-balance families. This is parents' responsibility, especially the mothers. So, it will be profitable to use different parenting methods in terms of BPT in order to deal with these children. Hence, the aim of the current study was to determine the effects of parents' behavior education on improving parenting practices in mothers with hearing-impaired children.

Method

This study was a quasi-experimental study with a pre-test and post-test design with a control group. The statistical population consisted of mothers raising hearing-impaired elementary school students in Azna city (west Iran), in 2015. The sampling method was a simple random sampling. Assigning to the experimental and control groups were done homogeneously in order to have maximum similarity. Thirty mothers whose children with severe hearing loss had the highest scores in the aggression subscale were selected as the main sample among 50 mothers who had completed the CBCL. After homogenization of the mothers, in terms of the variables such as level of education of the deaf children (third grade and fourth grade), gender of the deaf children (all boys), severity of hearing loss, maternal age and education, and after obtaining mothers' written satisfaction to participate in the study, totally 30 of them were selected and were randomly placed in experimental and control groups (15 per group). For experimental studies, 15 individuals for each group have been suggested which depending on the availability of participants, the number may change according to the descriptive findings [21]. The average age of the children was 9.65 years old with a standard deviation of 1.6 in the experimental group and 9.45 years old with a standard deviation of 1.2 in the control group. The average age of the mothers was 35.50 years old in the experimental group and 35.20 years old in the control group.

The inclusion criteria for the participants of this study were as follows; the type of hearing loss, which in this study all children in the experimental group were mainly suffering from severe hearing loss. The age of the mothers was another inclusion criterion. All the mothers were between 37 to 39 years old. Single-parent or two-parent families

were also considered. However, in this study all of them were two-parent families. The number of children with severe hearing loss was also considered so that all households had a child with severe hearing loss. Children's age was another inclusion criterion. Mothers' education was also considered so that all of them were college-educated. Samples should not have participated in more than two behavioral training sessions. Then training was provided for the experimental group. The mentioned variables (parenting styles) were again measured after training was completed. Since the number of questions of the following aggression subscale was not too many, the instructor clarified each question using different examples. The SPSS software (ver. 16) was used to analyze the obtained data. The descriptive statistics such as mean and standard deviation and also inferential statistics such as the Levene test were used to investigate the homogeneity of the variables of the study. Multivariable Analyze of Covariance and Univariate Analysis of Variance were also used to evaluate the effect of treatment on the parenting styles in order to control the influence of participants familiarity with the questionnaire in the pre-test as a method of statistical control. The ethical considerations were considered in the current study. The participants gave a written consent in order to participate in the study. Participating in all the sections of the study was optional and they could freely decide to leave the study.

The program's content had been adopted from Barkley's parent education program (2013) [22] which has been discussed in the following as educational interventions. Methods and techniques used in this research were supposed to provide trainings. These trainings included a lecture, discussion and the participation of the members of the group, an educational booklet and a CD or a tape session summary. Moreover, this training was done by a licensed psychologist with a doctoral degree and a professional practice in the field of psychology. There were nine weekly sessions and one booster session. Each session lasted approximately for 90 minutes. For each session, parents were asked to complete specific homework. At the beginning of each session, leaders reviewed the homework from the last session before turning in the homework to case managers. Whenever

parents made mistakes or had problems in their homework, the case managers would meet them immediately after the training session to discuss the problems. A summary of functional instructions of the emotion regulation training is presented in Table 1.

The following tools were used in the current study:

Child Behavior Checklist (CBCL): The Child Behavior Checklist (CBCL), designed by Achenbach in 1991 [23] is a widely used measure of children's social/academic functioning and behavior problems. A composite score for externalizing behavior problems is based on parental responses to 118 behavior problem items. In the present study, both parents completed this measure, yielding two scores for child externalizing behaviors; one based on mothers' reports and one based on fathers' reports. Good short-term test-retest reliability (93 for total problems) has been reported for this measure [23], and high internal consistency reliability was observed for mothers in the present study (Cronbach coefficient 0/86). The widespread use of the CBCL facilitates comparison of the present findings with those of prior studies. In this study, the Iranian version of the CBCL was used [24]. This questionnaire has got normative on a sample of 203 Iranian children and adolescents. In the mentioned study, the sensitivity, specificity, and Optical Mark Reading (OMR) were calculated for these cut-off points with reference to DSM-IV. Based on the total scores obtained from our samples, the score 35 had the best sensitivity (79.1%), the best specificity (98.5%), and the least OMR (5.4%) [24].

Parenting Styles and Dimensions Questionnaire (PSDQ): Robinson et al. designed the PSDQ in 2001. This questionnaire which includes 32 items with a range of five degrees was completed by parents in the present study. It measured three parenting styles including authority, despotism, and permissive [25]. Robinson et al. reported Cronbach alpha of 0.91 for the authority style, 0.86 for authoritarian, and 0.75 for the permissive style. Also, Alizadeh and Andries reported authoritative (Cronbach 0.91), authoritarian (Cronbach 0.86), and permissive (Cronbach 0.75) [26]. Cronbach alpha was detected as 0.82, 0.82, and 0.87 for authority, despotism, and permissive styles, respectively.

Table 1. Behavioral Parent Training Program

First session: The essential information was submitted, such as the nature, prevalence, course, prognosis, etiology, and treatment of behavioral problems in the hearing-impaired children
Second session: The essential background was submitted to explain basic principles of forming the behavior and the importance of the behavior management. The general principles such as positive reinforcement and separated reinforcement were also explained.
Third session: In this session, the role and importance of parents on child behavior was stressed and the principles of positive behaviors and ignoring inappropriate behaviors was also taught.
Fourth session: The positive attention to obey the parents and following the family rules were discussed in this session.
Fifth session: Token economy were discussed in this session.
Sixth session: Using fines and exclusion method was trained.
Seventh session: Behavior management in general situations were trained.
Eighth session: Improving the child's behavior in school from the house was discussed and ended in teaching the way of emphasizing positive behaviors and rating them.
Ninth session: In this session, a short review was conducted and the ways of dealing with the probable problems were discussed.

Results

Mean and standard deviation of the statistical indicators of the two groups scores are shown in Table 1.

As it can be seen in Table 1, the means of the two groups are equal in the pre-test phase. Multivariable Analyze of Covariance and Univariate Analysis of Variance were used to control the effect of pre-test. This type of analysis has key assumptions such as assumption of covariance. All the slope of the regressions are at the middle of the random variable [pre-test] and dependent variable. The interaction between the group and the pre-test was not significant. The recorded data was " $P > 0.05$ and $F = 0.657$ ", " $P > 0.05$ and $F = 0.965$ ", and " $P > 0.05$ and $F = 0.741$ " for permissive, despotism, and authority parenting styles, respectively. Hence, it can be said that the assumption was applied. The Levene test was used to verify the homogeneity of the variance in the groups. The Levene test was not statistically significant in any of the studied variables. The recorded data was " $P > 0.05$ and $F = 3.210$ ", " $P > 0.05$ and $F = 0.654$ ", and " $P > 0.05$ and $F = 0.838$ " for permissive, despotism, and authority parenting styles, respectively. So, the assumption of homogeneity of

variances was also confirmed. Hence, considering the establishment of the main assumptions of this test, we were allowed to use it.

The differences between the two groups reached a significant level based on the Centroid (Table 2). Furthermore, group membership had a significant effect on post-test scores ($P < 0.001$). So, the effect of BPT on the parenting styles variables were confirmed so that 0.32 or 32% of the noted variable changes were related to the group membership. The statistical power of 0.91 demonstrated a sufficient model size to test this question. A significant difference was observed between post-test scores after removing the pre-test, " $P < 0.001$ and $F [1 \text{ and } 27] = 72$ " for permissive parenting styles, " $P < 0.001$ and $F [1 \text{ and } 27] = 20.25$ " for despotism parenting style and " $P < 0.001$ and $F [1 \text{ and } 27] = 10.68$ " for authority parenting style. Therefore, the mean of post-test scores in permissive and despotism was significantly lower than that of the control group. This is while the score of authority parenting style was significantly higher. In other words, parent behavior education increased authority parenting style significantly and decreased the other styles in the experimental group.

Table 1. Descriptive Statistics of Subscales of the Parenting Styles Questionnaire between two Groups in the Pre-test and Post-test

Variables	Group	Mean	SD
Pre-test	Experimental	22.86	3.04
Permissive parenting style	Control	22.73	3.31
Post-test	Experimental	17.46	3.26
Permissive parenting style	Control	23.06	3.27
Pre-test	Experimental	22.46	2.08
Despotism parenting style	Control	22.20	2.17
Post-test	Experimental	18.73	2.57
Despotism parenting style	Control	22.13	2.61
Pre-test	Experimental	26.53	3.04
Authority parenting style	Control	26.93	3.51
Post-test	Experimental	30.53	3.36
Authority parenting style	Control	26.84	3.18

Table 2. Multivariate Covariance Analysis of Parenting Styles in Experimental and Control Groups

Index	Amount	F	P	Effect size	Statistical power
Lambda Vilkez	0.25	30.43	0.001	0.32	0.91

Table 3. Covariance Analysis of Parenting Styles Variables in Two Experimental and Control Groups

Variables	Sources of changes	Sum of squares	Freedom degree	Mean of squares	F	P	Eta square
Permissive parenting style	Pre-test	6.451	1	6.451	1.97	0.17	0.06
	Group	236.56	1	236.56	72.40	0.001	0.72
	Error	88.21	27	3.26	-	-	-
	Total	12652	30	-	-	-	-
Despotism parenting style	Pre-test	21.19	1	21.19	4.71	0.03	0.14
	Group	91.11	1	91.11	20.25	0.001	0.42
	Error	121.47	27	4.49	-	-	-
	Total	12775	30	-	-	-	-
Authority parenting style	Pre-test	70.20	1	70.20	6.25	0.01	0.18
	Group	120	1	120	10.68	0.003	0.28
	Error	303.26	27	11.23	-	-	-
	Total	24918	30	-	-	-	-

Discussion

The aim of the current study was to study the effects of BPT to improve parenting methods of mothers raising hearing-impaired children. The results showed the efficiency of BPT on improving their parenting style. In other words, the permissive and despotism parenting style decreased, while authority parenting style increased. Our results indicated the efficiency of such kind of tampering in reducing communication problems between parents and their children, as well as improving training and parenting style. Similar results were reported by other researchers based on the effectiveness of BPT on reducing inappropriate parenting styles and modifying such methods in the parents of children with behavioral and emotional problems [27]. Consequently, providing trainings targeting the reasons, characteristics and behavior management techniques for the parents raising children with hearing problems results in improving behavioral performance and training methods and consequently reduces their children's behavioral problems. Another way to change the parenting styles is to familiarize them with the nature of behavioral problems and the way in which such problems are formed and also to familiarize them with the principles of communication with children.

Since many of the behavioral problems of deaf children stem from strict parental methods and punishment, working on the methods such as ignoring the behavioral problems, regular positive reinforcement, and punishment approaches like recovery methods, can increase the probability of using inappropriate parenting styles, in order to reduce permissive and despotism parenting styles. Moreover, most of such mothers pursue negative and severe styles in an attempt to cope with behavioral problems of their deaf children. Since ignoring inappropriate behaviors and paying attention to appropriate behaviors is important, the field of BPT includes changing the manner in which mothers pay attention to their children. It could also be effective in improving the parenting methods. Consequently, it can be said that being skillful in paying attention and describing the activities carried out by the children may help mothers to indirectly improve appropriate behaviors of their children.

Results revealed that BPT was effective in increasing authority parenting style in mothers with deaf children. Most of the mothers participating in the training groups and early intervention family-centered programs had two different opinions about their child's problems or they may have believed that their child had chosen ways to persecute them voluntarily. Explanation of the nature and origins of children behavioral problems can reform their incorrect belief about the child and reduce the feelings of guilt due to the anger. Previous studies [28-29] have proven the correlation between parental behaviors and behavioral problems of children. The studies demonstrated that behavioral problems of children especially hearing-impaired children are highly dependent on parenting styles. Strict methods and punishment by parents causes severe behavioral

disorders in hearing-impaired children. Since many behavioral problems of deaf children stem from mothers' inappropriate parenting methods, teaching proper training styles and positive reinforcement and punishment approaches increases the probability of reducing inappropriate behaviors and makes it closer to authoritative parenting style. According to these results, it can be noted that family-centered behavioral interventions should be considered from early ages in preschool and kindergarten. Moreover, this study had limitations in some fields such as using quasi-experimental method, used instruments, and convenience sampling so that only mothers were participated. Due to the study methodological limitations and since the researchers could not also follow up the results because of the financial and time considerations, our personal view is that further research is needed to be conducted according to these limitations.

Conclusion

According to the results of the present study, BPT can have increasing positive interaction between the parent and child in severe hearing loss children and mothers. According to the results and considering the limitations mentioned in the research, it is suggested that other individuals who are closely in contact with these children, such as parents, teachers, and other family members can better identify the problems of these children. The results revealed that training and parenting methods can be much closer to reasonable and authoritative parenting styles by BPT in the form of applying family-centered interventions.

Conflict of Interest

The authors declared no conflicts of interest.

Ethical Approval

This research was financially supported by the University of Zanjan. This study was approved by the Department of Psychology, University of Zanjan.

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