

The Effect of Barkley's Family-Oriented Program on the Burden of Care on Families of Children with Attention Deficit-Hyperactive Disorder

Abstract

Background: Attention deficit-hyperactive disorder (ADHD) is the most common behavioral disorders during childhood whose treatment is greatly dependent on families; therefore, families of such children should improve their relation with them so that they could enjoy their lives. Hence, this study was conducted to evaluate the effect of Barkley's family-oriented program on the burden of care on such families. **Materials and Methods:** This clinical trial was conducted among 64 family care givers for children with ADHD. By simple sampling, samples passing the inclusion criteria were selected and randomly allocated into two groups of control and intervention. The intervention group received Barkley's family education program through 9 sessions; the control group participated in 3 group sessions and expressed their problems and experiences. Data were collected and analyzed using the Zarit Burden Interview. **Results:** Burden of care was gradually reduced through the study in the intervention group, however, the mean score of burden of care did not have a significant reduction in the control group. **Conclusions:** Because Barkley's family-oriented program was able to reduce the burden of care in families of children with ADHD, it is recommended to develop similar programs and evaluate them through various studies.

Keywords: Attention deficit-hyperactive disorder; burden, family care giver; Iran

Sharifeh Mousavi¹,
 Saeid
 Pahlavanzadeh²,
 Tayebeh Mehrabi³

¹Department of Psychiatric Nursing, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran, ²Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran, ³Nursing and Midwifery Care Research Centre, Faculty of Nursing and Midwifery, Isfahan University of Medical Sciences, Isfahan, Iran

Introduction

Attention deficit-hyperactive disorder (ADHD) is the most common behavioral disorder during childhood. This disorder could be diagnosed through a series of symptoms including hyperactivity, impulsive behaviors, and limited attention that could lead to impaired concentration and cause functional disabilities in different daily activities.^[1] The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, has reported that the rate of prevalence of this disorder is 2.5% for adults and 5% for children; in Iran, 33% of referrals to mental therapy centers are caused by this disorder.^[2] Researches have shown that different problems would occur in families of children with ADHD compared to families with healthy children, including conflicted family environment, increased stress and depression, inappropriate behavior of parents with other children, inappropriate interactions along with violence, increased economic burden, and parents' social and emotional isolation that could lead to permanent problems in parent-child relationships; these could

create a relationship permanently associated with guilt.^[3,4] Not only these problems would affect the child but they would also affect the family and the society. Different interventions exist for such children and their caregivers. According to Danforth, educational group sessions for parents could reduce inappropriate behaviors in children and improve the parent-child relation and reduce their stress. In fact, it would help the parents to recognize their strengths and weaknesses and encounter their problems more effectively. In addition, they would have a more positive feeling about their relation with their children.^[5] There are different self-regulated educational programs for parents^[6] and their general target is to increase parents' knowledge and decrease the behavioral problems of children. Barkley's educational program for parents is a systematic program with a 55–70% rate of success for parents of children under 12. The aim of this program is not to treat or eliminate the problems of this disorder; rather, it is mainly aimed to increase parent's coping strategies with their children's behaviors, optimizing

Address for correspondence:

Mr. Saeid Pahlavanzadeh,
 Faculty of Nursing and
 Midwifery, Isfahan University
 of Medical Sciences, Hezar
 Jerib Avenue, Isfahan, Iran.
 E-mail: pahlavanzadeh@
 nm.mui.ac.ir

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the level of stress and anxiety in families, increase parents' efficiency in managing their children's behaviors, increasing parents' knowledge about causes, principles, and fundamental theories of these behaviors, and also increasing child's obedience of parents' and physicians' instructions.^[3,7,8] Therefore, considering the few number of national studies in this field, and also the overwhelming nature of caregiving for children with ADHD,^[4] the present study was conducted to evaluate the effect of Barkley's family-oriented program on the burden of care on families of children with ADHD.

Materials and Methods

The present study was a two-group three-stage clinical trial IRCT Number IRCT2015050422082N1. The researcher, after considering all the legal issues, conducted sampling using simple sampling technique from June 2015 to July 2015 at the Noor and Al-Zahra medical educational centers. The inclusion criteria included being the main caregiver of a child with ADHD and being committed to all of their responsibilities, having sufficient physical and mental abilities for taking care of an ADHD child, willingness to participate in the study, being able to communicate in Persian, compliance with the rules of educational sessions, taking care of one patient with one chronic disease (which is ADHD) in the family, not having any drug addictions and not consuming any psychiatric drugs, not participating in any family educational sessions about children with ADHD before, and having an ADHD child of 7 to 12 years of age (school age) with a history of at least one hospitalization due to ADHD with no other disabling disease (physical disability, mental disability, autism). The exclusion criteria were unwillingness of the caregiver to continue participation in educational sessions, missing at most two educational sessions by the caregiver, and not being able to continue attending the educational sessions for any reason. Considering similar studies,^[9,10] the sample size for each group was set at 32 participants; Z1 was the confidence interval that was considered to be 95%, Z2 was test's power that was 80%, and d, which was the least difference between the mean of changes in score of burden of care between both groups, was considered to be 0.70. Samples were randomly allocated into two groups of intervention and control. Caregivers of the intervention group, after signing an informed consent form, participated in Barkley's family educational program. The control group was asked to only participate in pre-test, post-test, and follow-up stages, and along with receiving the routine treatment for their child, during the intervention, they were asked to participate in three group sessions that were held in a separate place from the intervention group to talk about their child's disease and experiences. The content of the interventional program was prepared and developed based on an educational booklet in accordance with Barkley's family-oriented program that included introduction to the disease, its problems, enhancing communicational

skills, problem solving and anger management, providing strategies for increasing attention and concentration and decreasing stress and anxiety in caregivers, and assigning homework at the end of each session. The educational supportive intervention was conducted as nine 75-minute sessions using PowerPoint, pictures, pamphlets, and speech for the family members of ADHD children. Data were collected using Zarit Burden Interview,^[11] which contains 22 items. The answers of caregivers to each question was evaluated based on Likert scale, where 0 was the lowest score of burden with no burden of care and 88 was the highest score with the maximum burden. Score of 61–88 indicated severe burden, 31–60 moderate burden, and less than 30 indicated mild burden; the questionnaire was prepared and validated by Navidian based on our country's cultural conditions.^[9] The questionnaire was completed by both groups before, right after, and 1 month after conducting Barkley's family-oriented program. Collected data were analyzed using Statistical Package for the Social Sciences version 18 (SPSS version 18, Iran, Isfahan), and inferential and descriptive statistics and also Chi square, Mann–Whitney, independent *t*-test, analysis of variance (ANOVA), and least squares difference (LSD).

Ethical considerations

Obtain informed consent, Hide Names, Confidentiality and the right to leave the study are The most important Ethical considerations. This article is a part of a research that was approved by the Isfahan University of Medical sciences.

Results

Results showed that, due to random allocation of participants, both groups were almost similar regarding their demographic variables such as age, gender, marital status, employment status, educational level, family relationship, and the duration of caregiving [Table 1]. In the intervention group, the burden of care was gradually decreased and the mean score of burden of care before, right after, and 1 month after Barkley's family-oriented program was 63.6, 29.2, and 23.4, respectively [Table 2]. Comparing the mean scores of burden of care at three stages in the intervention group using repeated-measures ANOVA test showed a significant difference between them ($P = 0.006$), implying that the burden of care before the intervention was higher than right after and 1 month after the intervention. Results also showed that the score of burden of care had no significant reduction in the control group and the mean score of burden of care before, right after, and 1 month after the intervention was 60.3, 60.9, and 62.6 respectively. Comparing the mean scores of burden of care between three stages in the control group using ANOVA test with repeated measures showed no significant difference ($P = 0.299$). Paired *t*-test showed a significant difference between the mean score of burden of care before and right

after the intervention, before and 1 month after the intervention and right after and 1 month after the intervention ($P < 0.05$). Independent t -test showed that the change in the mean score of burden of care right after the intervention compared to before the intervention was significantly more in the intervention group than the control group ($P < 0.05$). Furthermore, this test showed that the change in the mean score of burden of care 1 month after the intervention compared to before the intervention was significantly more in the intervention group than the control group ($P < 0.05$) [Table 3]. To compare participants'

score of burden of care at three stages of intervention in the intervention group ANOVA test with repeated measures and Post-hoc LSD test were used; their results showed that, in the intervention group, the differences between the mean score of burden of care before and right after the intervention and before and 1 month after the intervention were significant ($P < 0.05$).

Discussion

The advantage of parents' trainings compared to other methods is that it affects different aspects of parental and familial performance. Educational programs for parents are based on the viewpoint that behavioral disorders in children are caused and continued by inappropriate parent-child interactions. Considering the results before the intervention, the mean score of burden care had no significant difference between the intervention and the control group. However, right after and 1 month after the intervention, the mean score of burden of care in the intervention group was significantly lower than the control group, and it also gradually decreased significantly. There was a significant difference between the mean score of burden of care at three stages of before, right after, and 1 month after the study in the intervention group. The mean score of burden of care in the control group did not have a significant decrease overtime. The study of Kordestani showed that parents' trainings according to Barkley's method would decrease behavioral problems of children in the intervention group ($P < 0.05$) and it would also prevent psychological and health problems in parents.^[12] Results of a meta-analysis study by Munganolde showed that educating parents with a behavioral approach has been effective on decreasing destructive behaviors in children.^[13] The study of Shapoorabadi *et al.* showed that positive parenting group programs for mothers could significantly decrease conflict and dependence and increase closeness and in general it would improve parent-child relationship.^[14] In this regard Motoyama *et al.* conducted a study in Japan and educated parents of children with ADHD about the methods of encountering their children and decreasing parents' stress. After the trainings, parents' score of stress was significantly decreased, which indicated that educated parents selected more effective parenting methods and could control their stress better.^[15] All of the previously

Table 1: Patients' and caregivers' demographic characteristics in the study and control groups

Variables	Caregivers (n=32)		Patients (n=32)	
	Study	Control	Study	Control
Age (years), Average (SD)	32.21 (8.67)	33.32 (10.12)	10.83 (3.35)	11.12 (3.65)
Length of care (months), mean (SD)	49.62 (47.05)	47.035 (31.02)	-	-
Gender (%)				
Female	72	59.42	28.22	37.51
Male	28	40.63	71.81	62.52
Employment status (%)				
Working	28.11	31.47	-	-
Jobless	0	2.96	-	-
Homemaker	51.44	48.55	-	-
Retired	20.57	17.24	-	-
Marital status (%)				
Single	3.14	0	-	-
Married	90.74	93.85	-	-
Divorced	6.27	3.16	-	-
Widowed	0	3.17	-	-
Educational level (%)				
University	18.84	25	-	-
High school	46.95	43.87	-	-
Primary school	34.36	31.29	-	-
Relationship with the patient (%)				
Father	12.56	11	-	-
Mother	71.85	17	-	-
Immediate family	15.75	4	-	-

SD: Standard deviation

Table 2: Mean of caregiver burden score before, immediately, and 1 month after the intervention in the intervention and control group

Group	Caregiver burden			P	ANOVA with repeated observations (F)
	Before the intervention	Immediately after the intervention	1 month after the intervention		
Case group	63.64 (6.88)	29.21 (4.79)	23.84 (3.02)	<0.001	534.99
Control group	62.62 (6.95)	60.89 (5.63)	60.38 (5.61)	<0.001	1.79

ANOVA: Analysis of variance; SD: Standard deviation

Table 3: Comparison of the mean of changes in caregiver burden score immediately, and 1 month after the intervention than before the intervention in the intervention and control group

The changes of caregiver burden	Group					
	Case group		Control group		Statistical test	
	Mean	SD	Mean	SD	Independent-t-test	P
Immediately after the intervention than before the intervention	-35	8.85	-1.63	7	16.91	<0.001
1 month after the intervention than before the intervention	-40.64	6.55	-1.82	7.32	21.35	<0.001

SD: Standard deviation

conducted studies and the present study have revealed that educating parents is effective for improvement of the performance of parents and children with ADHD. However, unlike the present study, the study of Ghashang showed that Barkley's program that was conducted in four brief sessions for children of 3 to 5 years of age, had no significant effect.^[16]

However, in the present study the intervention was conducted as nine sessions for caregivers of 1–7-year-old children; increased number of sessions would allow the researcher to evaluate the process of program execution by mothers, as well as to solve their problems and answer their questions during the intervention. Moreover, during longer interventions, the changes in mothers and children would be more visible. Considering the assigned homework at the end of each session, caregivers executed Barkley's program in practice and discussed the problems and obstacles with the researcher in the next session and tried to solve them. In addition, by giving educational booklets and CDs to caregivers and following them up through phone calls, the researcher tried to increase the effectiveness and durability of the interventional program.

Conclusions

According to the results of the present study, Barkley's family-oriented program could decrease the burden of care through increasing knowledge and improving the attitude and performance in families of children with ADHD. Therefore, predicting and providing such psychological services in the system for provision of mental health services for patients with chronic diseases such as ADHD, seems effective and necessary.

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Conflicts of interest

There are no conflicts of interest.

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