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親子認知行為團體治療對台灣注意力缺陷過動症學童之療效研究

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背景：過去研究顯示認知行為治療有助於減少 ADHD 症狀，能改善 ADHD 兒童的人際互動技巧，而父母參與介入是治療的關鍵。本研究的目的是檢驗一個親子認知行為團體治療(CBGT)方案對台灣注意力缺陷過動症學童之療效。

方法：共有 29 對臺灣親子(2-5 年級)參與本研究，參與者分別在 6 個小團體中，完成 22 個單元的 CBGT 療程，包括 3 次的家長團體和 18 次的親子團體（每週一個單元）以及一次補強單元；每個單元共進行 90 分鐘。父母和老師在進行 CBGT 療程之前、後，針對兒童的行為分別填寫兒童行為檢核表(CBCL)，教師報告表(TRF)，兒童注意力量表和干擾行為量表。

結果：(1) 除了 TRF 的身體抱怨量尺分數外，所有 CBCL 和 TRF 量尺的後測分數均低於前測分數。(2) CBCL 的內化量尺(焦慮／憂鬱)、外化量尺(違反規範行為和攻擊行為)、思考問題和整體問題分數在治療後顯著減少。(3) TRF 的注意力問題(過動-衝動)分數在治療後顯著降低。(4) 採用 DSM 導向量尺分析，顯示 CBCL 的情感問題和 ADHD 問題及 TRF 的 ADHD 問題在治療以後也顯著減少。

結論：研究結果支持此親子 CBGT 方案對 ADHD 學童有所療效。建議未來研究可進一步探討此種方案對臺灣父母親職行為的效果和文化涵義。

關鍵字：療效，兒童，ADHD，CBT，CBCL，臺灣

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Outcome Study of a Parent-Child Cognitive-Behavioral Group Therapy Program for Taiwanese School-Age Children with Attention Deficit/Hyperactivity Disorder

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Abstract

Background: Research has shown that CBT can reduce ADHD symptoms and improve interpersonal skills of ADHD children and parental involvement is crucial for the treatment outcome. This study intends to examine the effect of a parent-child cognitive-behavioral group therapy (CBGT) program on Taiwanese children with ADHD.

Methods: Twenty-nine Taiwanese parent-child (grades 2-5) sets, in 6 groups, completed a 22-session CBGT program, which included 3 parent-only and 18 parent-child weekly sessions and one booster session; each session lasted 90 minutes. The Child Behavior Checklist (CBCL), Teacher Report Form (TRF), Child Attention Profile, and Disruptive Behavior Rating Scale were completed by parents and teachers at pre- and post-test.

Results: (1) All the CBCL and TRF post-test scores were lower than the pre-test scores, except somatic complaints on the TRF. (2) Scores on the CBCL scales of internalizing syndromes (anxious/depressed), externalizing syndromes (rule-breaking behavior and aggressive behavior), thought problem, and total problem significantly reduced after treatment. (3) Scores on the TRF scale of attention problem (hyperactivity-impulsivity) significantly reduced after treatment. (4) The DSM-oriented scale scores of affective and ADHD problem on the CBCL as well as of ADHD problem

on the TRF also significantly reduced after treatment.

Conclusions: The results support some positive effect of a parent-child CBGT program for ADHD children. Future research should evaluate the effect and cultural implication of such a program on Taiwanese parenting behaviors.

Keywords: Outcome, Child, ADHD, CBT, CBCL, Taiwan

Introduction

Attention-Deficit/Hyperactivity Disorder (ADHD), usually first diagnosed in childhood, is a disorder with a prevalence rate of approximately 3-7%.⁽¹⁾ Children with ADHD have deficiencies in self-control and self-regulation needed to match environmental demands. Interpersonal conflicts frequently appear in these children's interactions with their parents, teachers, and peers.⁽²⁾ Their disruptive behaviors not only affect family function but also increase parental stress. On the other hand, parental cognitions (e.g., inappropriate attributions of ADHD children's behaviors, external control, and perceptual distortions) and parenting practice (e.g., inappropriate reinforcement, vague and frequent commands, and poor supervision of child) further contribute to family relationship difficulties.⁽³⁾

Barkley proposed that the underlying mechanism of ADHD symptoms is a behavioral inhibition deficit.^(4,5) Behavioral inhibition consists of inhibiting the prepotent response, interrupting the ongoing response, and controlling the interference. With adequate behavioral inhibition, nonverbal working memory, internalization of speech, self-regulation of affect/motivation/arousal, and reconstitution can function well, as can motor control, fluency, and syntax. Rapport, Chung, Shore and Isaacs in their conceptual model of ADHD further suggested that the core symptoms of ADHD (inattention and hyperactivity-impulsivity) could induce such peripheral features as interpersonal problems, noncompliance, academic failure, and low self-esteem.⁽⁶⁾ Research evidences have shown that CBT can improve both the core symptoms⁷⁻¹⁰⁾ and peripheral features of ADHD.^(8, 11-13)

CBT for ADHD children usually employs many cognitive strategies, such as self-instructional training, problem-solving, and affective education, as well as behavioral techniques, including in vivo exposure, relaxation training, modeling, contingent reinforcement, and role play.^(13, 14) Among all the CBT techniques, self-control is the most successful in helping children with ADHD acquire specific coping strategies to manage their angry reactions arising from provocative interactions with peers.⁽¹⁵⁾ In addition, parental involvement is crucial in preventive interventions for children with ADHD⁽¹⁶⁾ because it can result in improvement in (1) parents' dysfunctional attributions regarding their children's maladjusted behavior and (2) generalization and maintenance of the cognitive-behavioral techniques acquired by their children.⁽³⁾

Based on the literature, a cognitive-behavioral group therapy (CBGT) program for Taiwanese school-age ADHD children and their parents was designed and conducted.

The purpose of this study was to examine the effect of this parent-child CBGT program on the core symptoms and peripheral problems of ADHD children. It was expected that after the treatment both ADHD core symptoms and peripheral problems of these ADHD children would decrease.

Methods

Participants

From 2001 to 2006, 37 child-parent sets, referred by child psychiatrists at a medical center in southern Taiwan, participated in 6 CBT groups. All the children have a diagnosis of ADHD and were in grades 2 to 5. All the parents have at least high school education. Exclusion criteria were, for children, mental retardation and autism, and, for parents, any psychiatric disorders. All ADHD children were on methylphenidate during the period of this study. All parents gave informed consent to participate in the study and permission for their children's teachers to complete the behavioral ratings on their children.

Design

This study used pre-post single group design to examine the treatment outcome of a CBGT program. This CBGT program was the product of an integration of 3 sources of materials: (1) the multi-component school-based cognitive-behavioral intervention for ADHD children,⁽³⁾ (2) the parent training program of Barkley,⁽¹⁷⁾ and (3) observational data at home and school from previous studies of the authors.⁽¹⁸⁾

The CBGT program consisted of 22 sessions of group therapy; sessions 1 to 21 were conducted weekly and session 22, a booster session, was conducted 3 weeks after session 21; each session lasted 90 minutes. This program included 3 parent and 18 parent-child sessions. The first 3 sessions, for parents only, focused on helping parents understand ADHD, identify dysfunctional parental attributions, attend to child's good behavior, and learn problem-solving strategies. In the parent-child sessions, training topics included problem-solving and self-instruction (sessions 4 to 8), interpersonal problem-solving (sessions 9 to 11), anger and frustration management (sessions 12 to 15), poor effort control (sessions 16 to 18), and negative thought/feelings management (sessions 19 to 20). In session 21, program review and relapse prevention were conducted; children shared and celebrated their acquisition of CBT techniques in group through performance and activities. In the booster session (session 22), the program was reviewed again to consolidate their learning and problems encountered in using CBT

techniques were discussed.

Each session was conducted in the following steps: (1) Homework was checked and tokens awarded for good work. (2) All children, except each session's target child, set themselves a behavioral goal. Based on the target child's progress, the therapist assigned a developmentally more challenging goal for him/her and with its fulfillment the target child could earn twice as many tokens as other children that session. Every child was the 'target child' an equal number of times over the treatment course (about 4-5 times on average depending on group size). (3) The therapist repeated group rules and norms. (4) Session topic and handouts were discussed and CBT techniques rehearsed through role play. (5) Homework assignments were given. (6) Participants practiced relaxation exercise. (7) Prizes were given for every 100 tokens earned during previous sessions. (8) The "star child", the child receiving the most tokens that session, then chose the type of play for the following play time, wherein therapists prompted or guided children to use CBT techniques in group play.

At the end of session 20, the total tokens that each child has earned in previous sessions were tallied and ranked accordingly. Parents and therapist then collaboratively selected a prize for each child based on the child's preference and the tokens earned by him/her. At session 21, children traded their tokens for the prize.

Materials

Four kinds of instruments were used in this study.

1. Semi-structured interview schedule ⁽¹⁹⁾

This interview schedule was used to collect data from parents about their child's developmental history, medical history, behavioral problems, and DSM-IV diagnoses.

2. Child Behavior Checklist (CBCL) and Teacher's Report Form (TRF) ⁽²⁰⁻²²⁾

The CBCL/TRF was completed by parents and teachers to report the children's problematic behaviors at home and school, respectively. Both checklists have good reliability and validity. ⁽²³⁾ The Chinese versions of the CBCL-1983/TRF-1986 have shown promising reliability and validity. ⁽²⁴⁻²⁵⁾ At the time of data collection the Chinese version of CBCL-1983/TRF-1986 were given to all the parents and teachers to fill out. With the new development of CBCL/TRF-2001 and their capacity to produce factor structures similar across genders and informants, ⁽²⁶⁻²⁷⁾ the authors

decided to use CBCL/TRF-2001 classification to analyze data collected from the CBCL-1983/TRF-1986 and other measures so that scores of 6 DSM-oriented scales (i.e., affective, anxiety, somatic, attention deficit/hyperactivity, oppositional defiant, and conduct) can be computed. Therefore, information collected from the interviews, behavior observations, and behavior ratings in the study were integrated into the CBCL-1983/TRF-1986 to complete the modified and additional items in the CBCL/TRF-2001.

3. Child Attention Profile (CAP) ⁽²⁸⁾

The CAP, also known as the Child Attention Problem, was completed by parents and teachers to rate the children's inattention and overactivity. It consists of 12 items, derived from the TRF, and includes 2 subscales: inattention (7 items) and overactivity (5 items).

4. Disruptive Behavior Rating Scale-Parent Form/Teacher Form (DBRS-PF/TF) ⁽¹⁹⁾

The DBRS was completed by parents (DBRS-PF) and teachers (DBRS-TF) to report the children's problematic behaviors at home and school, respectively. It consists of 26 items in three subscales: inattention (9 items), hyperactivity-impulsivity (9 items), and oppositional-defiant behavior (8 items). Both rating forms have good reliability and validity. ⁽¹⁹⁾

Procedure

Before the first training session, all children were evaluated with the WISC-III and parents were interviewed using the semi-structured interview schedule. The CBCL/TRF, CAP, and DBRS were completed by parents and teachers at sessions 1 (pre-test) and 21 (post-test). A description of this CBGT program was also sent to the teachers by parents at the first session.

Data analysis

Of 37 parent-child sets, 8 (22%) dropped out of the program at different times during the training; their data were not included in final analyses. The remaining 29 sets (78%) completed the program and their data were collected. However, only 21 teachers completed all the measures at both pre-test and post-test because 5 teachers did not fill out the TRF at post-test, 2 teachers resigned, and 1 child transferred to new school. Therefore, a total of 29 CBCL and 21 TRF protocols were analyzed using SPSS-10. Statistical procedures included the z test, χ^2 test, and paired t test.

Results

Demographic Characteristics of ADHD Children and their Parents

Table 1 presents the demographic data of ADHD children and their parents in terms of their participating status. Neither child IQ and demographic variables, nor parental ages and education levels differed significantly between participants and drop-outs.

In our final sample of 29 ADHD children, there were 25 boys (86%) and 4 girls (14%), with an average age of 105 months (SD = 14.3; range: 82-134). The range of their IQs was 75-121 for FIQ, 81-121 for VIQ, and 74-128 for PIQ. 14 children (48%) had comorbid oppositional defiant disorder (ODD) and 1 (3%) conduct disorder (CD). In our final sample of 29 parents, there were 27 mothers (93%) and 2 fathers (7%), with an average age of 39 years (SD = 4.4; range: 32-50). About half of the parents (52%) had above high school education and about 2/3 (66%) had full-time job.

<Insert Table 1 about here>

Syndrome Scales of CBCL and TRF

Table 2 presents the pre-test and post-test scores on the syndrome scales of CBCL and TRF. On all the syndrome scales, except somatic complaints scale in the TRF, the post-test scores were lower than pre-test scores. However, the profile of pre-post differences in CBCL scores was different from that of pre-post differences in TRF scores. For the CBCL, significant pre-post differences showed in subscales of internalizing syndromes, anxious/depressed, externalizing syndromes, rule-breaking behavior, aggressive behavior, thought problem, and total problem. For the TRF, significant pre-post differences showed in subscales of attention problem and hyperactivity-impulsivity.

<Insert Table 2 about here>

The DSM-oriented Scales of CBCL and TRF

Table 3 presents the pre-test and post-test scores on the DSM-oriented scales of CBCL and TRF. On all the DSM-oriented scales, except somatic problem scale in the TRF, the post-test scores were lower than pre-test scores. The profile of pre-post differences was similar for both the CBCL and TRF. That is, post-test scores on the ADHD problem subscale were significantly lower than pre-test scores for both the CBCL and the TRF. For both the inattention and hyperactivity-impulsivity subscales in the TRF, the post-test scores were significantly lower than pre-test scores. In addition,

for the affective problem scale in the CBCL, the post-test scores were also significantly lower than pre-test scores.

<Insert Table 3 about here>

Discussion

Consistent with previous findings,⁽²⁹⁾ the results of this study support the positive effect of a CBGT program for ADHD children. The results of this study are also consistent with the predictions from both models of ADHD by Barkley⁽⁴⁾ and Rapport et al.⁽⁶⁾ that CBT group can improve the core symptoms and peripheral problems of ADHD. Many components in this CBGT program might have contributed to its efficacy. First, the 5 steps of problem-solving training that teaches ADHD children how to apply problem-solving skills and social skills to interpersonal problems help reduce their core symptoms. Second, teaching ADHD children how to manage anger and modify negative thoughts about themselves further ameliorate their peripheral problems. Third, the daily practice of autogenic relaxation with parental participation and monitoring at home was especially effective in reducing the anxiety level of these ADHD children. Fourth, there were many opportunities for these children to practice their acquired CBT techniques during play time. Finally, parents, as co-therapists, helped prompt, assist, and monitor their children in using CBT techniques in daily life. Overall, the participants were eager to learn in the group and their attendances were good; in case of absence, individual make-up sessions were provided before the next group meeting.

This study also provides some interesting findings. For example, it is noted that the patterns of pre-post differences were not as consistent for syndrome scales of the CBCL and TRF as for DSM-oriented scales. This might imply that the DSM-oriented scales of the CBCL and TRF, derived from experts from 16 cultures,⁽²²⁾ to be better tools for evaluating treatment outcomes of CBT on ADHD children than the syndrome scales of the CBCL and TRF developed from an empirically-based paradigm and bottom-up approach.^(22,27)

Nevertheless, the findings of this study should be interpreted with caution given certain limitations in its research design. Due to ethical considerations and difficulty recruiting participants, a control group was not included here. It is an ethical concern to have parents of control group to repeatedly evaluate symptomatic behaviors of their children without providing needed services. Of course, one should not ignore the possibility of developmental change over time when evaluating the treatment outcome. However, this issue might not be so critical here because of the short-term nature of this CBGT program. There is no apparent reason to predict that significant developmental

changes should occur within such a short period of time given no obvious intervention, especially when all the target children were still within the same developmental stage. Even if there is any developmental change occurred, it should be negligible. This point is supported by the fact that most developmental measures are designed to assess developmental change over at least a period of 6 months. In addition, some research evidence has shown that the CBCL has substantial stability over 4-year period.⁽²³⁾

There are many interesting issues worth to be explored in future studies. First, it is not clear how this CBGT program has affected the participating parents who served as both participants and co-therapists in this training. In future research, the outcome measures should include not only parental ratings of ADHD children's behaviors but also self-report of parenting behaviors so that the behavioral changes of both ADHD children and their parents can be evaluated. Second, it is not clear how some concepts from indigenous Chinese psychology can be applied to our understanding of and intervention for ADHD children. Huang and Huang⁽³⁰⁾ have pointed out that the emphasis on hierarchical parent-child transactions and parental duty to socialize their children in Chinese culture might serve important functions in social development of Chinese children. Chao, Huang, Huang, Yang, Tseng, Chung, & Chen⁽³¹⁾ have suggested that the concept of "ren" (forbearance) from indigenous Chinese psychology is similar to the concept of "behavioral inhibition" in Barkley's model.⁽⁴⁾ Through socialization process, it is believed that the psychological mechanism of "ren" gradually develops and becomes functional. Future studies that compare the parental perceptions of parent-child transactions and child-rearing practice before and after CBT programs for Taiwanese ADHD children and their parents might help us further understand the implications of these indigenous concepts to Taiwanese parenting of ADHD children.

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Table 1.
Demographic Data and IQ of Participants and Drop-outs

	Participants ($n_1 = 29$)		Drop-outs ($n_2 = 8$)		z/χ^2
	f (%)	Mean (SD)	f (%)	Mean (SD)	
ADHD children					
Age (month)		105 (14.3)		103 (12.4)	0.36 ^a
Gender					1.24 ^b
Boy	25 (86.2)		8 (100.0)		
Girl	4 (13.8)		0		
Comorbidity					
ODD	14 (48.3)		2 (25.0)		1.38 ^b
CD	1 (3.4)		1 (12.5)		1.01 ^b
WISC-III					
FIQ		103 (10.3)		105 (12.6)	0.07 ^a
VIQ		106 (10.2)		106 (10.1)	0.50 ^a
PIQ		101 (11.5)		101 (14.1)	0.11 ^a
Parents					
Age (year)		39 (4.4)		38 (3.9)	0.93 ^a
Gender					0.58 ^b
Father	2 (6.9)		0		
Mother	27 (93.1)		8 (100.0)		
Education					0.29 ^b
High school	14 (48.3)		3 (37.5)		
> High school	15 (51.7)		5 (62.5)		
Occupation					1.45 ^b
Full-time job	19 (65.5)		7 (87.5)		
Homekeeper	10 (34.5)		1 (12.5)		

Abbreviations: ^az-test was used here. ^b χ^2 test was used here.

Table 2.

Pre-test and Post-test Scores on the Syndrome Scales of CBCL and TRF

Syndrome scale	CBCL (<i>n</i> = 29)			TRF (<i>n</i> = 21)		
	Pre-test	Post-test	<i>t</i>	Pre-test	Post-test	<i>t</i>
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Internalizing syndromes	12.28 (8.11)	9.48 (7.82)	3.15**	11.14 (10.43)	9.71 (9.99)	1.08
Anxious/depressed	6.76 (4.69)	5.17 (4.34)	3.00**	7.43 (6.72)	6.76 (6.48)	0.68
Withdrawn/depressed	2.14 (1.83)	1.76 (1.94)	1.23	2.95 (2.46)	2.05 (2.06)	1.91
Somatic complaints	3.38 (3.51)	2.55 (3.32)	1.71	0.76 (2.43)	0.90 (2.66)	-0.72
Externalizing syndromes	20.90 (8.71)	17.66 (10.08)	2.35*	17.52 (13.76)	15.14 (9.67)	1.05
Rule-breaking behavior	6.59 (3.20)	5.38 (3.50)	2.27*	3.86 (3.79)	3.43 (2.69)	0.69
Aggressive behavior	14.31 (5.91)	12.28 (6.96)	2.12*	13.67 (10.31)	11.71 (7.46)	1.09
Social problem	7.45 (3.07)	6.59 (4.26)	1.21	4.71 (3.61)	4.52 (3.09)	0.35
Thought problem	5.72 (3.63)	3.34 (2.97)	4.30**	2.14 (3.89)	1.29 (2.51)	1.40
Attention problem	11.14 (3.43)	10.00 (3.67)	1.57	21.90 (9.29)	17.95 (8.70)	2.33*
Inattention	-	-	-	11.57 (5.61)	9.52 (5.21)	1.96
Hyperactivity-impulsivity	-	-	-	10.33 (4.68)	8.43 (4.04)	2.16*
Total problem	64.72 (23.17)	52.52 (27.14)	3.04**	59.10 (36.78)	49.95 (29.87)	1.78

Abbreviations: * $p < .05$. ** $p < .01$.

Table 3.

Pre-test and Post-test Scores on the DSM-Oriented Scales of the CBCL and TRF

DSM-oriented scale	CBCL (<i>n</i> = 29)			TRF (<i>n</i> = 21)		
	Pre-test	Post-test	<i>t</i>	Pre-test	Post-test	<i>t</i>
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Affective problem	5.45 (3.29)	4.17 (3.40)	3.35**	2.81 (3.01)	1.95 (2.27)	1.56
Anxiety problem	3.07 (2.31)	2.48 (2.05)	1.79	2.62 (2.69)	2.19 (2.27)	1.18
Somatic problem	1.62 (2.18)	1.45 (2.32)	0.45	0.52 (1.78)	0.71 (2.05)	-1.16
ADHD Problem	10.14 (2.23)	8.59 (2.57)	2.95**	14.29 (5.16)	11.71 (5.02)	2.62*
Inattention	-	-	-	6.14 (1.71)	5.10 (2.17)	2.75*
Hyperactivity-impulsivity	-	-	-	8.14 (3.80)	6.62 (3.28)	2.09*
Oppositional Defiant problem	5.52 (2.32)	5.00 (2.59)	1.25	4.71 (2.95)	4.05 (2.13)	1.28
Conduct problem	7.83 (4.18)	6.90 (4.91)	1.38	5.76 (5.16)	5.00 (4.05)	0.92

Abbreviations: * $p < .05$. ** $p < .01$.