

## Original Article

## The Effectiveness of Group Positive Parenting Program on Parental Stress of Mothers of Children with Attention-Deficit/Hyperactivity Disorder

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**Background:** The present study examined the influence of group positive parenting program on parental stress of mothers of children with attention-deficient/hyperactivity disorder. Mothers of 13 children aged four to ten years, who met attention-deficient/hyperactivity disorder diagnosis by assessment of a child psychiatrist and clinical psychologist were selected from two child and adolescent psychiatric clinics of Tehran. To control the drug effects, researchers chose children who took methylphenidate (Ritalin) since six months before.

**Methods:** The group programs consisted of a six-weekly session of two hours duration, plus two telephone educational sessions, each one lasting 15 minutes. Group was run by an experienced clinician who followed a specific training manual to ensure a standard format. These sessions continued with eight participants, because five of 13 mothers did not attend the classes.

**Results:** The results indicated that group positive parenting program caused mothers to experience lower stress. A two-month follow-up showed the stable efficiency of the program.

**Conclusion:** This study revealed that the competency feeling and couples' harmony—as intervening variables—about nurturing the child were improved.

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**Keywords:** ADHD • group positive parenting program (GPPP) • mothers' stress

### Introduction

Attention-deficit/hyperactivity disorder (ADHD) is a prevalent mental disorder, yet there are no absolute criteria or clinical/laboratory examination to recognize and diagnose it. The main diagnosing source in this field is related to the Diagnostic and Statistical Manual of American Psychiatric Association-Text Revision (DSM-IV-TR) which offers a more comprehensive view about the disorder.

In this manual, symptoms of ADHD fall into three clusters: inattention, hyperactivity, and impu-

livity. If the criteria of the inattention and hyperactivity-impulsivity met together, the diagnosis would be for ADHD combined type. Problems with attention and hyperactivity-impulsivity must: 1) be present for at least six months; 2) be present before the age of seven; and 3) be serious enough to interfere with the child's social or academic functioning.<sup>1</sup>

Since there are many misdiagnoses in ADHD, discrepancies in ideas of authors about the frequency of the disorder would be inevitable. ADHD is now a widely diagnosed chronic and impairing disorder occurring in 3 – 7% of school-aged population.<sup>2</sup> Frequency of school children diagnosed with ADHD is much higher in the United States than in most other countries.<sup>3</sup> Some studies reported that the prevalence of the disorder in Australian children aged four to 11 and 12 – 16 years is 5.5% and 7.6%, respectively.<sup>4</sup> The results of ADHD studies in Iran are not consistent; for example, the frequency of school children (aged

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seven to eight years) with ADHD was estimated 3.77% in Isfahan<sup>5</sup>; in another study, it has been reported that ADHD is a common disorder among 4% of elementary students of Ilam (west of Iran).<sup>5</sup> According to the last epidemiologic survey in Tehran, the prevalence of the disease was estimated at 6 – 7% of school-aged (seven to 12 years) children.<sup>6</sup>

In addition to the fundamental problems—inattention, and hyperactivity-impulsivity—studies showed that ADHD is usually accompanied with some other psychopathological symptoms and the patients may be prone to experience affectionate, social, or behavioral problems than their normal peers. Nowadays, clinical and research evidence indicate that as the ADHD child grows up, levels of her/his inattention and hyperactivity-impulsivity symptoms decrease, but 70 – 80% of children with ADHD still continue to exhibit secondary signs of the disorder in adolescence period.<sup>7</sup> Studies which pursued these children into early adulthood showed that the disorder frequently persists and is accompanied by significant psychopathologies and dysfunctions in later life.<sup>8</sup>

An associated feature of ADHD is the problematic parent-child interactions<sup>9,10</sup> which wholly has remarkable and distressing impact on couples' relationships. Parents of ADHD children are exposed to more parental challenges than ones with normal children and are more susceptible to report mood/anxiety problems, experience insufficiency in parenting behaviors, expressing discomfort from their parenting roles, and perhaps encountering more financial stress and alcohol use.<sup>11</sup> Some studies concurred that parental stress plays an important role in punitive methods of parents, which could directly increase child's aggressive/destructive behaviors<sup>12</sup>; the process that Johnston<sup>13</sup> labeled it as a “negative reactive response.” Usually, as the time passes, insufficiency feeling about parent's tasks, generalizes to other aspects of life; the marital communications would especially be influenced. Many of mothers, who spend most of their time with ADHD children, show clinical symptoms of depression and distress. These mothers may also display feelings of anger, shame, and guilt as the consequence of negative emotions which are produced by child-parent interactions.<sup>14</sup> Feelings of depression and lack of competency may disrupt parental duties and could have an immense influence on parental stress.<sup>15</sup> Perceived insufficiency of parents could incline them to experience severe stress;

their self-confidence would be decreased as a result of such negative emotions and fall them gradually into depression or other psychological disturbances. This process finally impacts parents' ability of child rearing. Poor “self-efficacy” (person's belief that whether he/she can successfully do the assigned tasks or not) is another factor that may direct parents to instable and nonauthoritative parenting which in turn affects the accounted performance of the child.<sup>16</sup>

Although multidimensional sources are accounted for parental stress, many researchers believe that ADHD and its clinical features are primary distressing factors which parents experience them.<sup>17</sup>

There are various treatment interventions to ADHD, but parents play a key role in modifying maladaptive behaviors of the children; hence, it is notable that relieving parental stress—particularly mothers—in the first step may elaborate mental health of parents and prepare them to do their parental roles better. One of the most influential programs to control such behaviors is “positive parenting program” (triple P). This therapeutic method derived from clinical experiences and studies is related to a division of family therapy for parents of children (aged two to 14 years) who are now at risk of emotional/behavioral disorders.

Triple P is an approach to the treatment and prevention of childhood and adolescent disorders, and has sufficient empirical support of any intervention with children, particularly those with conduct problems.<sup>18</sup> Such programs encourage several changes in target group capacities that may include behavior modifications through exact educating sessions. Implicitly they could influence on behavior and performance of people to make them able to adapt situational demands. As authors say, the program consists of five levels as follow:

“*Level 1* is a universal parent information strategy which provides all interested parents with access to useful information about parenting through a coordinated media and promotional campaign using print and electronic media, as well as user-friendly parenting trip sheets and videotapes which demonstrate specific parenting strategies. This level of intervention aims to increase community awareness of parenting resources, receptivity of parents to participating in programs, and to create a sense of optimism by depicting solutions to common behavioral and developmental concerns.

*Level 2* is a brief, one- to two-session individual

primary care intervention or a one- to three-session large group seminar program providing early anticipatory developmental guidance to parents of children with mild to moderate behavior difficulties.

*Level 3*, a four-session intervention, targets children with moderate behavior difficulties and include active skills training for parents.

*Level 4* is an intensive eight- to ten-session individual or group parent training program for children with more severe behavioral difficulties. *Level 5*, which is deployed in conjunction with *Level 4*, is an enhanced family intervention program for families where parenting difficulties are complicated by other sources of family distress (marital conflict, parental depression, or high levels of stress).

All five levels of the intervention focus mostly on increasing self-sufficiency and self-efficacy of parents. In this method, a trained clinician or counselor teaches some kinds of skills to parent(s) and they could advance child's social competency and develop his/her self-control by putting these skills in practice.<sup>18</sup>

In a two-year follow-up on 718 parents with preschool children, it is demonstrated that participation of parents in triple P, shaped outstanding changes in behavioral problems of children".

In this study, authoritarian parenting of parents also altered dramatically to authoritative style than individuals of the control group.<sup>19</sup> Besides mentioned benefits of triple P, feelings of stress, depression, anxiety, and couples' conflicts about training the child decreased notably. As the results explained, this educational program equipped couples with better skills to adjust various unforeseeable situations; 89% of the participants also reported to attain at least some profits of this program. This therapeutic intervention also investigates risk factors relating to developmental psychopathologies and its consequences in children to improve their marital conflicts and decrease stress/depression of life conditions. Today, it is well-discriminated that as the couples' communications recover, agreement of child tutoring would increase; on the other hand, child-parent problems may decrease too.<sup>19</sup>

Because of the necessity to build relative constant changes in quality and also quantity of child-parent relationships, the primary objective of the current study was to examine the effects of "triple P" on parental stress of mothers of children

with ADHD. According to Sanders' triple P, the authors of the present study tried to reform some of behavioral problems in child-mother interaction and help them to cope better with ADHD children.

## Materials and Methods

### Participants

Thirteen mothers who referred to two clinics of Welfare Sciences and Rehabilitation University to seek treatment for their ADHD children were selected. Because five of these 13 mothers could not attend the sessions completely, they were excluded from the program and the baseline stage and group sessions were continued with eight participants. All the participants were volunteered to attend the educational program and filled out a consent form before they contributed. Children of these mothers were ADHD-combined type who met DSM-IV-TR criteria for ADHD. Clinical assessment of these children was performed by a child psychiatrist and clinical psychologist to bring a more integrated diagnosis.

### Instrument

Parental Stress Index (PSI) is a five-point Likert scale, measuring the significance of stress in child-parents' interaction system. PSI was built on the fact that parental stress could originate from features of child like, child mood, inflexibility, or other abnormal behaviors (named child realm behaviors); the range of scores in this realm is 50 to 145, and the normal score range is from 78 to 122. Parents' characteristics, such as lack of self-efficacy, insufficiency, depression, disagreement in child rearing, etc. (named mothers realm behaviors), which could stem from a variety of conditions (i.e., divorce, death of a beloved one, etc.) are directly related to parental role.<sup>20</sup> The range of scores in this realm is 69 to 188, and the normal score range is from 99 to 148. Another realm relates to competency feeling of mothers and has a score range of 15 to 45 (normal range: 22 – 35). The last realm deals with parents' coordination and has a score range of 6 to 28 (normal range: 11 – 22). In the present study, the authors used a 101-item PSI, which the participants should respond on a five-point Likert rating (ranging from "strongly agree" to "strongly disagree"). It should be noted that 19 of 101 items are voluntary items and because they are not related to our study, they were excluded from the analysis. These 19 items are called "life stress

**Table 1.** ANOVA results for child realm.

Effect	Value	F	Sig.	Effect	Value	F	Sig.
Pillai's trace	0.982	33.672	.008	Pillai's trace	0.982	33.672	.008
Wilks' lambda	0.018	33.672	.008	Wilks' lambda	0.018	33.672	.008
Hotelling's trace	56.121	33.672	.008	Hotelling's trace	56.121	33.672	.008
Ray's large	56.121	33.672	.008	Ray's large	56.121	33.672	.008

scale.”

Reliability of the scale was substantiated in various studies. For example, the internal consistency of the scale via Chronbach's  $\alpha$  method was estimated at 0.93 in a sample of mothers ( $n=248$ ) in Hong Kong. The coefficient was 0.85 and 0.91 for child realm and parent realm items, respectively. Discriminant validity of the test is 0.93; and the range of concurrent validity as compared with five other stress questionnaires is between 0.38 and 0.66. In a group of mothers, the total internal consistency of PSI was 0.93; it was 0.83 for child realm items and 0.83 for parental realm items, separately.<sup>15</sup> In the same manner, Dadsetan et al.<sup>15</sup> conducted a study on an Iranian sample. In their research on 140 mothers (70 housewife mothers and 70 mothers who were medical nurses) the authors reported that the total internal consistency, as measured by Chronbach's  $\alpha$ , of the instrument was 0.88, and its estimated reliability via test-retest method was 0.94 with a 10-day interval.

### Procedure

Time-series design was applied to evaluate and interpret variables causality of the study participants completed the PSI in two stages (with a two-week interval). The first measurement was the baseline and the second one was the pretest measurement. After a four-weekly educational session of group triple P (every session lasted 120 minutes), the third measurement (middle test) was performed. The four remaining sessions (the last two were weekly 15 minutes telephone educational sessions) carried out and then the fourth measurement (post-test) was performed. Finally, the last two measurements were done monthly as follow-up after the last educational telephone communication. This design could be exhibit as follow:  $O_1 O_2 X_1 O_3 X_2 O_4 O_5 O_6$ . The collected data from the six measurements were analyzed by SPSS software.

### Results

The effectiveness of “group triple P” on mothers' stress was investigated by repeated-measures analysis of variance. The first output of MANOVA for child realm is shown in Table 1.

As Table 1 shows, all of the four effects of F—especially Wilks' lambda which was used in the present study—were statistically significant. Thus, it could be concluded that the change in scores in multiple measurements was statistically significant; that is “group triple P” was effective in declining scores of subjects in child realm subscale.

It is necessary to calculate the effects of testing, since in this study PSI was performed twice before executing the program (independent variable). To make sure that multiple testing had no effects on the results, and also to compare the baseline scores in child realm with pretest scores, paired samples Student's *t*-test was used (Table 2).

As Table 2 shows, the difference between the two measurements (i.e., the first experiment) was not statistically significant.

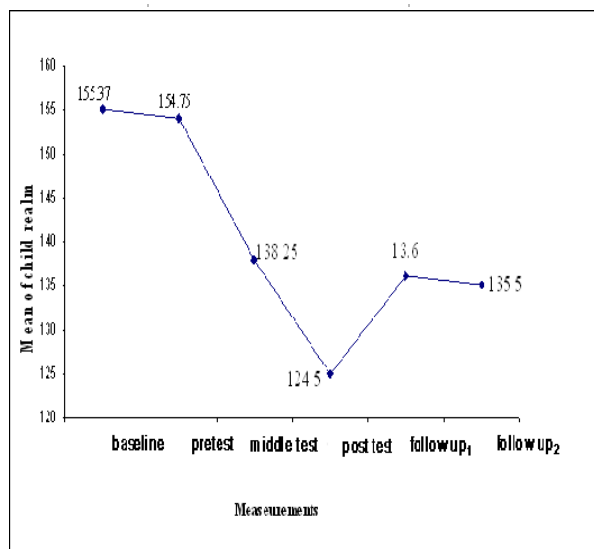
There was a significant difference between pretest and middle test (i.e., the third experiment) (Figure 1). Stress of child realm decreased and this decrement continued to post-test (Figure 1).

To achieve a more precise evaluation of the effectiveness of the “group triple P” on lessening mothers' stress, a trend analysis of the observed variables was performed (Table 3).

The observed linear effect ( $F=16.331, \alpha=0.005$ ) revealed that the outcomes of measurements were altered significantly along the program. The value of the second experiment (i.e., pretest and middle test), showed that the program caused a significant decline in mothers' stress ( $F=17.491, \alpha=0.029$ ); this was true for the third experiment (middle test and post-test), ( $F=8.532, \alpha=0.022$ ) as well. In the fourth experiment of child realm subscale (post-test and follow-up), ( $F=3.903, \alpha=0.089$ ) and also in

**Table 2.** Paired samples Student's *t*-test for baseline and pretest scores in child realm.

	M	SD	T	$\alpha$
Total scores of baseline	155.37	18.22	—	—
Total scores of pretest scores	154.75	20.73	—	—
Difference between baseline and pretest scores	0.625	4.405	0.401	0.7



**Figure 1.** Mean of child realm subscale in all six measurement stages.

the last experiment (follow-up 1, and follow-up 2), ( $F=2.304$ ,  $\alpha=0.173$ ), there was no significant modification (Table 4).

When paired samples Student's *t*-test was used, the results were substantiated again (Table 5); the difference between the two follow-up measurements was not statistically significant; so, it could be inferred that education-related changes are constant through the time.

All effects of *F* in MANOVA, especially Wilks' lambda, were statistically significant ( $F=119.539$ ,  $\alpha=0.001$ ) (Table 6); that is, "group triple P" was effective on the program. Also, the difference between the baseline and pretest scores of mothers' realm subscale was computed via it (Table 7).

The difference between these two measurements (i.e., first experiment) was not statistically significant (Figure 2).

There was a significant difference between pretest and middle test (Figure 2). Consistent with the figure, in the middle test stage, stress of mothers' realm subscale more decreased than before.

To achieve a more precise evaluation about the effectiveness of "group triple P" on lessening the stress, the authors executed a trend analysis to recognize if the program was influential.

The value of linear effect ( $F=15.461$ ,  $\alpha=0.006$ ) showed that the direction of the results in the whole experiments along the educational program was modified dramatically. As the value of the second experiment (pretest and middle test) showed, the program caused a significant decline in mothers' stress ( $F=10.474$ ,  $\alpha=0.014$ ). This decline was maintained in the third experiment (i.e., middle test and post-test) ( $F= 3.493$ ,  $\alpha= 0.104$ ) (Table 8).

In the fourth experiment (post-test and follow-up 1), however, there was little increase in levels of stress between stages of post-test and the first follow-up ( $F=14.944$ ,  $\alpha=0.006$ ). Meanwhile, there is no significant modification than prior stage in experiment 5 (i.e., follow-up 1 and follow-up 2) ( $F=2.529$ ,  $\alpha=0.159$ ) (Table 8). Paired samples Student's *t*-test also substantiated the consistency of the fifth experiment.

The difference between the first follow-up and the second one was not statistically significant (Table 9). Therefore, it could be concluded that educational effects of the program remained stable until the second follow-up measurement.

As could be seen in Table 10, there is significant difference between baseline and follow-up 1 scores. It means that mothers' stress had declined in follow-up.

Overall review of the literature pointed out that while there are various factors which cause parental stress, inability of parents to manage behaviors of their ADHD child is among the major factors which form stress—especially, in mothers.

Feelings of parents about their skills and lack of competency may lead in reduction of self-esteem (and subsequent self-confidence) and could function as an important source for parental stress. Therefore, we merely focused on the quantitative description of figures about feelings of competency in the mothers and marital accordance as the intervening variables in initiating mothers' stress.

The values presented in Table 11 reflect significant difference between scores of baseline and follow-up 1 scores in mothers' competency; so we could conclude that stress of mothers decreased in first follow-up (i.e. mother's competency had increased in child rearing).

**Table 3.** Paired samples Student's *t*-test for baseline and follow-up1 scores in child realm.

	M	SD	T	$\alpha$
Total scores of baseline	155.37	18.82	—	—
Total scores of follow-up 1	136	27.95	—	—
Difference between baseline and follow-up 1	19.37	18.47	2.96	0.02

**Table 4.** Trend analysis of mothers' stress in child realm.

Source	Sum of squares	Mean of squares	df	F	$\alpha$
Linear effect	3278.616	3278.616	1	16.33	.005
Second experiment	1208.037	1208.037	1	17.491	.029
Third experiment	335.434	335.434	1	8.532	.022
Fourth experiment	892.004	892.004	1	3.903	.089
Fifth experiment	128.512	128.512	1	2.304	0.173

**Table 5.** Paired samples Student's *t*-test in two follow-ups of child realm.

Source	M	SD	T	$\alpha$
Scores of follow-up 1	136	27.95	—	—
Scores of follow-up 2	135	27.22	—	—
Difference between first and second follow-up	0.5	8.88	0.159	0.878

Altogether, with due attention to Figure 3, the current line of competency feeling scores decreased through the process of educational program. In fact, decreasing scores in competency subscale of PSI indicates that the participants achieve the feeling of competency more than before. The mean of competency scores declined from pretest to middle test stage and still continued into the post-test stage.

Indeed, dropping of scores gave a hint that

**Table 6.** MANOVA results for mothers' realm.

Effect	Value	F	A
Pillai's trace	0.995	119.539	.001
Wilks' lambda	0.005	119.539	.001
Hotelling's trace	199.232	119.539	.001
Ray's largest root	199.232	119.539	.001

mothers perceive parental roles more reinforcing, supportive, and applicable to control their ADHD children on account of the program. Figure 3 shows that in the first follow-up measurement stage, the gradient of the competency scores changed, and took an ascending trend, so that it also prolonged to the second stage of follow-up. This means that by ending the program (training sessions), scores of competency scale increased, but never reached levels of the baseline and pretest stages. It may be related to finishing the workshop assignments and facilitator-like role of the leader. Totally, it could be claimed that the "group triple P" (via offering special skills) had a positive impact on the ability of the mothers to regulate their children's behaviors.

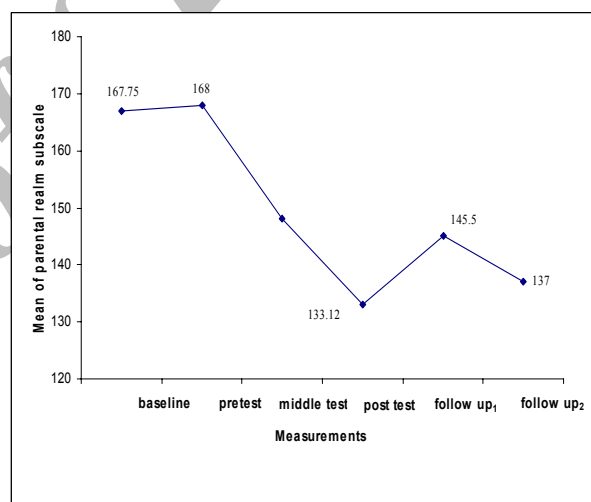
According to values of the tables, there is

**Table 7.** Student's *t*-test of baseline and pretest scores in mothers' realm subscale.

	M	SD	T	$\alpha$
Total scores of baseline	155.37	18.22	—	—
Total scores of pretest	154.75	20.73	—	—
Difference between baseline and pretest scores	0.625	4.405	0.401	0.7

significant difference between baseline and follow-up 1 scores; it means that couples relationships improved because of decreasing the stress (Table 12).

Figure 4 shows the marital balance during the



**Figure 2.** Mean of stress in mothers' realm subscale.

educational program. The scores are lessened between pretest to middle test measurement stages and sustained even to the post-test stage (Figure 4). Actually, declining of scores suggested that the provided emotional support by each of spouses increases, and as a consequence, they may attain a closer agreement in child rearing. In other words, it could be expressed that the mothers gained some benefits from the educational program.

According to Figure 4, scores rose again in the first follow-up stage and continued to the second stage of the follow-up. In fact, decreased scores in this variable revealed that husband's affect and

**Table 8.** MANOVA results for mothers' realm.

Source	Sum of squares	Mean of squares	df	F	$\alpha$
Linear effect	6345.045	6345.045	1	15.461	.006
Second experiment	733.339	733.339	1	10.474	.014
Third experiment	166.736	166.736	1	3.493	.104
Fourth experiment	1585.786	1585.786	1	14.944	.006
Fifth experiment	122.032	122.032	1	2.529	.156

**Table 9.** Paired samples Student's *t*-test for follow-up<sub>1</sub>, and follow-up<sub>2</sub> scores in mothers' realm.

	M	SD	T	$\alpha$
Total scores of follow-up 1 total	145.50	37.19	—	—
Scores of follow-up 2	137	41.30	—	—
Difference between 1 <sup>st</sup> and 2 <sup>nd</sup> follow-up	8.500	20.88	1.151	.287

active support raised more than before the opening the sessions. Nevertheless, like feeling of competency, scores of parents' coordination subscale did not reach that of the first measurement stage (i.e., pretest stage of the measurement). Therefore, it could be inferred that probably "group triple P" was successful to involve couples in a more cooperative view for rearing the child. It is note worthy that the effects of program continued still after ending the program. Perhaps, rise of the scores in follow-ups related to ending the program and absence of trainer as catalyst.

## Discussion

Outcomes of child's realm subscale clarified that scores of the participants in the baseline and pretest measurement stages were at the highest level, though the reduction of stress could be remarkable. In fact, attaining knowledge and awareness about ADHD or learning how to manage problematic behaviors of the child changed mothers' perceptions about stressfulness of ADHD; that is, when mothers learn how to deal with their ADHD children, they will experience less stress than before and it may prevent them to fall in a distressing situation.

As an explanation perhaps it could be inferred

that while the educator (trainer) is working, the mothers simultaneously could feedback them as a group leader about their issues with their child, which consequently results in their content and decreasing levels of stress or any perceived frustration. In fact, presence of the trainer acts as a catalyst and yields in therapeutic alliance so that participants get aid from his/her profession.

Implicitly, social learning theory explanation is that, these mothers may learn a lot of things from each other to handle their distress. Furthermore, the most important advantage of such psycho-educational groups is its internal dynamics (i.e., self-disclosure and feedback) which force participants involve in team work; the process of reciprocal and interactional relationships among subjects cause something like catharsis about their same concerns about child rearing. This would help participants cope better with the problems.

Investigation of outcome in parents realm subscale expresses that "group triple P" produced milestone effects on decreasing levels of mothers' stress. Although obviously the level of stress rose a little in the first follow-up, the rise was not so much to state that the program had no effects. Rather, distinguished that educational-related program effects preserved two months after the last session of group triple P. In a more detailed phrase,

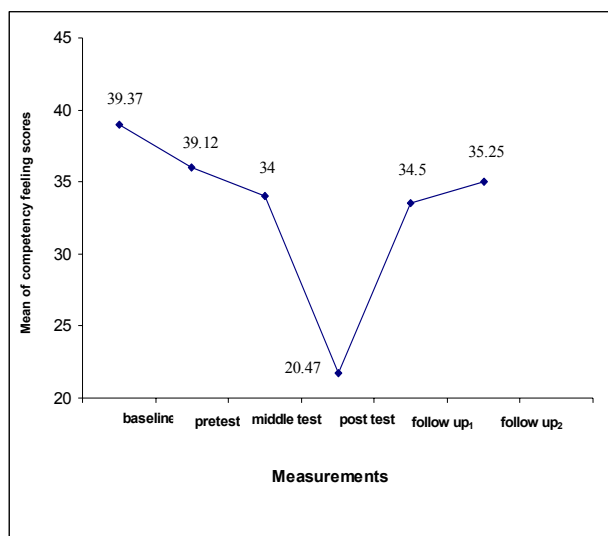
**Table 10.** Paired samples Student's *t*-test of baseline and follow-up 1 scores in mothers' realm.

	M	SD	T	$\alpha$
Total scores of baseline	167.75	29.68		
Total scores of follow-up1	145.5	37.19		
Difference between scores of baseline and follow-up1	22.25	15.70	4.006	0.005

**Table 11.** Paired samples Student's *t*-test of baseline and follow-up 1 scores in mothers' competency.

Source	M	SD	T	$\alpha$
Total scores of baseline	39.375	7.71		
Total scores of follow-up 1	34.5	7.05		
Difference between scores of baseline and follow-up 1	4.875	4.29	3.21	0.015





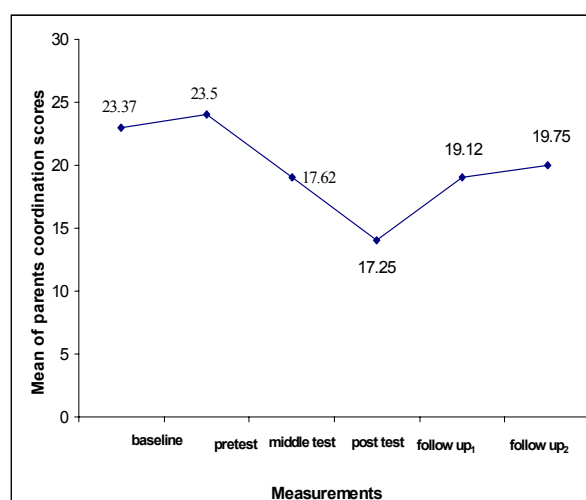
**Figure 3.** Mean of competency feeling scores during six stages of measurements.

the mothers could control or regulate their children's training stress by obtaining sufficient abilities. This could be possible through educational triple Ps.

Conclusions of the present study are consistent with most of other research done in this field. For example, Anastopoulos and colleagues<sup>17</sup> showed that behavioral education would be effective to improve parent-child interactions, elevating parental self-esteem, and decreasing parental stress. Sanders,<sup>19</sup> described that GPPP reduces high levels of stress, anxiety, anger and, depression symptoms in mother, and also showed that the program is helpful specially to reduce parental role stress.

Sanders et al.<sup>18</sup> claimed that “triple P” created a positive impact in which parents could overcome their confused/deranged parenting; the program also shaped a significant influence on enhancing parental sense of competency. These consequences were stable even a year after the last examination. They demonstrated educational programs as a suitable and influential method for parents in which they could learn how to moderate their parental stress and increase feelings of competency in themselves.

Inquiries of couples' accordance (couples' harmony in tutoring the child) in this study suggest that GPPP caused them achieve a more integrated



**Figure 4.** Parents' (couples) coordination in six stages of measurements.

approach to foster the ADHD child. In fact, it seems that GPPP created an interactional and cooperative atmosphere between couples than once before attending the classes.

Sanders<sup>19</sup> discusses that parental stress, anxiety, conflicts, and depression symptoms of nurturing the child may decrease and couples' harmony would extend because of “triple P.” Markie-Dadds and colleagues<sup>21</sup> in another study claimed that as a result of “triple P” marital accordance and parental tension improved notably.

As a whole, the current study implicitly suggests that “GPPP”, a form of educational/behavioral intervention, is suitable to rectify stress of mothers with ADHD children. According to the outcomes of the study, such programs may heighten feeling of competency and couples' unity for bringing up the child.

We can point to some limitations of the study; for instance, one of the major limitations of this study was the small sample size; a similar study with a larger and more representative sample would allow a more in-depth exploration of gender and race/ethnic differences in stress, depression, and couples' cooperation. Also, studies with a control group are needed to get more detailed conclusions. Another limitation of the research pertains to subjects; that is, we began our study with 13 mothers in the baseline stage, but five of them refused to continue the program for different

**Table 12.** Paired samples Student's *t*-test for baseline and follow-up 1 scores in couples' coordination (relationships).

	M	SD	T	$\alpha$
Total scores of baseline	22.50	6.90		
Total scores of follow-up1	19.37	7.08		
Difference between scores of baseline and follow-up 1	3.12	3.18	2.77	0.027



reasons; it could be stated that we would confront different results if the five mothers continued the psychoeducation program. Unfortunately, there is no study in Iran which mentioned the validity of the PSI. Lack of access to valid instruments considers as a limitation too, and the authors simply relied on the reliability of the tool.

The data gathered by this research should be valued to clinicians and mental health professionals, as they attempt to recognize psychological needs of parents with ADHD children. We hope that managed care service institutes and other mental health agencies together could help prevent the rising problems of such families.

## References

- 1 APA. *Diagnostic and Statistical Manual of Mental Disorders-Text Revision. (DSM-IV-TR)*. Washington, DC: American Psychiatric Association; 2000.
- 2 Angold A, Erkanli A, Egger HL, Costello EJ. Stimulant treatment for children: a community perspective. *J Am Acad Child Adolesc Psychiatry*. 2000; **39**: 975 – 984.
- 3 Azad H. *Child Abnormal Psychology* [in Persian]. Tehran: Pajang Publication Inc. 2005
- 4 Cann W, Rogers H, Matthews Y. Family intervention services program evaluation: a brief report on initial outcome for families. *Australian E-Journal for the Advancement of Mental Health*. 2003; **2**: 2 – 3. Available from: URL: <http://www.auseinet.com/Journal.Vol2iss/Cann.Pdf>. Accessed at 2007
- 5 Kalantary M, Neshatdoost H, Zareee MB. Influence of behavioral education of parents and drug therapy on symptoms of ADHD [in Persian]. *J Psychology*. 2001; **5**: 118 – 134.
- 6 Khooshabi K, Puretemad H. Investigation of rate of ADHD and comorbid disorders on elementary students of Tehran. Research Report, for Welfare Sciences and Rehabilitation University, Tehran; 2002.
- 7 Barkley RA. *Attention-Deficit/Hyperactivity Disorder: A Hand Book for Diagnosis and Treatment*. New York: Guilford Press; 1990.
- 8 Biederman J. Attention- deficit/hyperactivity disorder: a life span perspective. *J Clin Psychiatr*. 1998; **59**: 1 – 13.
- 9 Barkley RA. *Attention-Deficit/Hyperactivity Disorder: A Hand Book for Diagnosis and Treatment*. 3rd ed. New York: Guilford Press; 2006.
- 10 Wells KG. Family therapy for attention-deficit/hyperactivity disorder (ADHD). In: Lebow J. ed. *Handbook of Clinical Family Therapy*. Englewood N. J.: Wiley; 2005.
- 11 Pelham WE, Lang AR. Can your children drive you to drink alcohol research and health? 1999; **23**: 42 – 49. Available from: URL: [http://www.athealth.com/consumer/disorders/adhd\\_parents.html](http://www.athealth.com/consumer/disorders/adhd_parents.html). Accessed at 2007
- 12 Rabiner CD. Stress and coping in parents of children with ADHD. 2002. Available from: URL: [www.helpforadd.com/2002/September.html](http://www.helpforadd.com/2002/September.html). Accessed at 2007
- 13 Johnston C. Parent characteristics and parent-child interactions in families of nonproblem children and ADHD children with higher and lower levels of oppositional-defiant behavior. *J Abnorm Child Psychol*. 1996; **24**: 85 – 104.
- 14 Everet CA. *Family Therapy for ADHD: Treating Children, Adolescents, and Adults*. New York: Guilford Press; 1999.
- 15 Dadsetan P, Azghandi A, Abadi H. Parental stress and general health. A research on parental stress of mothers (housekeepers and nurses). *J Iran Psychol*. 2006; **2**: 85 – 96.
- 16 Costin J, Lichte C, Hill-Smith A. Parent group treatments for children with oppositional defiant disorder. *Australian e-Journal for the Advancement of Mental Health (AeJAMH)*. 2004; **3**: 12 – 23. Available from: URL: <http://www.auseinet.com/Journal/vol3iss1/costin.Pdf>. Accessed at 2007
- 17 Anastopoulos AD, Shelton TL, DuPaul GJ, Guevremont DC. Parent training for attention-deficit hyperactivity disorder: its impact on parent functioning. *J Abnorm Child Psychol*. 1993; **21**: 581 – 596.
- 18 Sanders MR, Markie-Dadds C, Tully LA, Bor W. The triple P-positive parenting program: a comparison of enhanced, standard, and self-directed behavioral family intervention for parents of children with early onset conduct problems. *J Consult Clin Psychol*. 2000; **68**: 624 – 640.
- 19 Sanders MR. Triple P: A Multi-Level System of Parenting Intervention: Workshop Participant Notes. The University of Queensland: Brisbane, Australia; 2005.
- 20 Loyd BH, Abidin RR. Revision of the parenting stress index. *J Pediatr Psychol*. 1985; **10**: 169 – 177.
- 21 Markie-Dadds C, Sanders R. Self-directed triple P (Positive Parenting Program) for mothers with children at-risk of developing conduct problems. *Behavioural Cognitive Psychotherapy*. 2006; **343**: 259 – 275. Available from: URL: <http://espace.library.uq.edu.au/view/UQ:119819>. Accessed at 2007