The Effectiveness of Family-Based Interventions on Parent-Adolescent Interaction and Adolescents' Self-Efficacy

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Abstract
The aim of the present study was to examine the effectiveness of family-based interventions parent-adolescent interaction and adolescents' self-efficacy. For this purpose, 30 adolescents with behavioral disorder along with their parents were randomly divided to two experimental and control groups and the pretest tools were conducted for both groups. The participants filled out pretest questionnaires and demographic data form. The experimental group participated in a training program, but the control group received no training. The program was generally held in 15 sessions as 5 general and group sessions with the presence of fathers and mothers at the same time (without children), then 5 group sessions for mothers, three individual sessions for each adolescent and finally 2 sessions dedicated to each family with the presence of adolescent children under cognitive-behavioral training program. After the end of training, the posttests were administered simultaneously. The research tools included Self-Efficacy Questionnaire for Children (SEQ-C), Pianta's Child-Parent Relationship Questionnaire (1994). Multivariate covariance analysis was used to analyze the data. The results indicated that family-based interventions would lead to the improvement of parent-adolescent interaction and the increase of self-efficacy in adolescents.

Keywords: family-based interventions, parent-adolescent interaction, self-efficacy

Introduction
Adolescence is one of the most important and most sensitive growth stages in one's life and the transition from childhood to adulthood that is associated with physical, emotional, sensational, and personality changes and conflicts (Hajamini et al., 2008). An individual's personality changes during this stage and parent-adolescent interaction will affect the style of their interpersonal interactions because of the changes that appear in individuals during the adolescence (Smetana, 2009). Thus, interactions with parents are changing and conflicting during adolescence, so that they affect adolescents’ growth and development (Mayseless et al., 2012). Numerous studies show that the frequency of conflicts reaches its climax in the early adolescence (about 13-14 years of age) and then reduces gradually in the mid adolescence (14-16). This is a natural trend of growth, which changes child-parent into adolescent-parent interactions. It is worth noting that a degree of conflict with parents during adolescence is normal because of the changes
and transition from childhood to adolescence (Smetana, 2009). Moreover, Contrary to the positive effects of a good and efficient interaction on an adolescent, high frequency of psychological health problems, and problems associated with mutual parent-adolescent interaction can be referred to as the negative effects of inefficient and inadequate interaction (Hayes et al., 2008). Negative parent-child interaction including high levels of authoritarian behavior of parents and excessive intervention (Rigby et al., 2007) and low levels of positive parental interaction are significantly associated with negative interaction of parent in adolescence as well as further differences in parent-adolescent interaction (Ackard et al., 2006). It seems like that parent-adolescent conflict is associated with other variables that could have a moderating aspect (Smetana et al., 2013). The principle of reciprocity is obvious in parent-adolescent interactions (Masen et al., 2007). Most researchers have assigned great values to the role of families, among the factors influencing individuals' personality, in mental and behavioral health of adolescents. When family members grow and change, the family faces communication challenges and conflicts and parent-adolescent interaction requires the management of interpersonal relation between them (Shearman & Dumlao, 2008). This means that a parent's behavior affects an adolescent's growth and development in some way and an adolescent's features have direct effects on child breeding style and the features of parents' interaction patterns (Brumariu & Kerns, 2008). Parent-child interaction includes parameters such as child adoption, more supportiveness, negligence, and child banishing. Child adoption indicates the adequacy of child-adolescent interaction towards expressing emotions, interest in activities and development of adolescent. On the other hand, extra-supportiveness by parent results from fear over the health of adolescent, fear of failure and extreme concern about what the child is going to do, and instead of conveying a feeling of safety it makes the child believe in vulnerability. The parent rejection style is known as hostility, aggression, irritability along with negative feelings and provides fewer resources for their adolescents to make interpersonal interactions in future (Maughan et al., 2012). Therefore, communication problems of an adolescent can result from the conditions in parent-adolescent interactions and in this regard, the role of parent as the first social environment interacting with the child is particularly important.

Self-efficacy as one of the variables of this study is based on the term "Bandura's self-efficacy" (quoted by Taylor, 2006). Self-efficacy means an individual's belief in his own ability to do an activity, produce an outcome, deal with specific situations, and generally have an impact on the conditions (Bandura, 2005). Belief in self-efficacy is the basis for motivation, health, and merit of an individual's personality (Frank, 2005). In human agency mechanism, there is no more basic concept than self-efficacy from Babdura's point of view, (Bandura, 1999). Self-efficacy beliefs also affect individuals' choices. This means that people tend to engage in activities in which they feel competent and to avoid activities in which they do not feel efficacy (Pajares and Schunk, 2001). Specialists in different fields have divided self-efficacy into four categories: social self-efficacy that means one's conception of their own abilities to achieve social norms and interactions. Acquired self-efficacy, which means one's conception of their own abilities to control and manage negative thoughts and emotions. Physical self-efficacy, which means one's perception of physical ability, confidence in doing activities and physical skills, and
certainty about positive physical effectiveness on other people and emotional self-efficacy, which means one's perception of their ability to control and manage negative thoughts and emotions (Muris et al., 2005). According to this model, self-efficacy has a pivotal role in self-regulation of emotional states and as long as one does not believe that, they can have good effects with their actions they will have little incentive to act. Self-efficacy is an individual’s belief in his ability to deal with special situations and influences intellectual, behavioral, and emotional patterns in different levels of human experience (Bandura, 2006).

One of the models that has been greatly emphasized in recent years in explaining and preventing the problems of adolescents is family-based intervention. A family has various educational capacities to learn and understand intervention programs (Marlyn et al., 2011). Family-based intervention is highly significant since the family is the first place of the formation of behavioral and emotional interactions of the child. Family-based approach concentrates on the power, resources, and capabilities of adolescents and families (Saleebey, 2007). In the context of a the family-based approach, parents know themselves well and want the best for them; therefore, parents have the main role in this intervention and they have the main responsibility to interact with adolescents (Lammi, 2003). In the family-based approach, intervention is done at home and parents are trained during the intervention. Therefore, a relaxed environment is provided for adolescents, which leads to their maximum work performance and self-efficacy (Lammi, 2003).

Numerous studies have referred to the effect of interventions as an element in parent—adolescent interaction and adolescents’ self-efficacy. The results of the study conducted by Dunst et al. (2002) indicate that the role of family in the life of adolescents is constant and it is the best opportunity to determine the needs and welfare level of adolescents. Law et al. (2005) concluded that family-based approach improves the results for adolescents, families and promotes the quality of parent-adolescent interaction. In a study entitled "Predicting the quality of parent-adolescent interaction and child attachment security in at-risk families" Simona et al. (2014) concluded that these two factors deeply affect each other and intervention programs must be consistent with family skills support.

Bhupinder & Rakhi (2009) did a research entitled "Self-efficacy and well-being of adolescents" figured out that families are a source of individual support and one of the motivational factors for individuals. The results of the study on extended and nuclear families indicated the important effect of different kinds of family interaction on self-efficacy in adolescents. Frank (2005) in his study entitled “Self-efficacy during childhood and adolescence (Implications for teachers and parents)” found that they can make adolescents believe that they have ability or inability capacity and teachers and parents are the key elements in the self-efficacy of their adolescents. Larson (2009) in his findings entitled "Family-based interventions with children and adolescents with externalizing behavior problems" concluded that training parents properly to respond to their children regularly (constantly), positive reaction to adolescents, management of social techniques to change the behavior of adolescents and positive enforcement within
families are highly important. U.S. Department of Health and Human Services for Children and Youth and Families (2013) states in a program entitled "Family-child interventions in at-risk families" that parental skills training strategies enhance positive behaviors in children and adolescents and parents must be taught positive patterns of behavior, support, encouragement and feedback, and parent-adolescent needs should be cared for.

Given the importance of the family in the formation of personal relationships and interactions of family members with each other and society, this matter highlights the necessity of considering the role of family in parent-adolescent interaction and self-efficacy in adolescents. Moreover, access to accurate information in relation to adolescents can provided the context for effective and research-based programs. In this regard, this study aimed to investigate the effectiveness of family-based interventions on parent-adolescent interaction and self-efficacy in adolescents. Therefore, the following hypotheses are being tested:

1. Family-based interventions change parent-adolescent interaction.
2. Family-based interventions change adolescents' self-efficacy.

**Method**

The present study is a quasi-experimental research in terms of data collection method with pre-test and post-test. In this research the subjects were randomly divided into experimental and control groups.

**Research Population, Sample, and Sampling Method:**

The population of the present research includes all students aged 12 to 16 with who were studying in Tehran during 2015-2016 and their parents who have referred to Center of Psychology and Counseling Services in Tehran because of behavioral problems of the students.

The inclusive criteria for the subjects to participate in the study and to homogenize them in proportion with training characteristics are having the symptoms of behavioral disorder as recognized by the child and adolescent psychologist in counseling center; 7-12-year-old adolescents; having parents who live together; parents with at least diploma; participants' interest to take part in the research based on written consent and having average or above average IQ for children (90 and more). The exclusion criteria for participants in the study are receiving another psychological intervention by the adolescent during the research; beginning pharmacotherapy for psychological problems of the child during one month before the intervention; comorbidity with learning disorders; receiving other psychological intervention by parents during the research; acute or chronic physical illness of father, mother, and child. Finally, in this study, 30 adolescents with behavioral disorder referring to Center of Psychology and Counseling, along with their parents were selected as the main sample of the research by using available sampling and then they were randomly divided into two equal groups of 15 subjects including adolescents and their parents as the following:

- **Experimental group:** participating in family-based intervention program
- **Control group:** not receiving any intervention

In order to collect research data three tools were used as follows:
Demographic Characteristics Inventory: demographic characteristics of participants including gender, age, school grade of adolescents and educational, occupational, and economic status of parents, and the number of children in family.

Self-Efficacy Questionnaire for Children and Adolescents (SEQ-C): the questionnaire consists of 23 questioned that are designed in the form of three components as social, educational, and emotional self-efficacy.

In Iran, This questionnaire was validated by Tahmasian in 2007. To calculate the test reliability, Cronbach’s alpha and test-retest have been used. Alpha coefficient obtained for the total score of self-efficacy is equal to 0.73. The obtained coefficients for social, educational, and emotional efficacy are 0.66, 0.74, and 0.84, respectively. The correlation coefficient obtained in the retest is 0.89, which is a good figure.

Pianta’s Parent - Child Intervention Questionnaire: This scale was developed by Pianta for the first time in 1994 and contains 33 articles. The scale includes areas of conflict (17 items), proximity (10 items) and dependence (6 items). Cronbach’s alpha coefficient for each of the areas is 0.84, 0.69 and 0.46, respectively. The questionnaire is scored through Likerts’ five-point scale (1: definitely not true to 5: definitely true) (Driscoll and Pianta, 2011).

Procedure
At first, 30 adolescents with behavioral disorder along with their mothers and fathers were randomly divided into two experimental and control groups and the pretest tools were administered for both groups. Participants completed pretest questionnaires and demographic profile form. The experimental group participated in training program, but the control group received no training. This course was totally held in 15 sessions. The sessions respectively included 5 public and group sessions with simultaneous presence of fathers and mothers (without the presence of children), then 5 group sessions for mothers, 3 individual sessions for each adolescent and finally 2 sessions were dedicated to each family with the presence of the adolescent under training program as the cognitive-behavioral method. After the end of training course, the posttests were administered at the same time by the researcher assistant.

It is worth noting that, in summary, by studying the existing resources the educational content of the program has concentrated on the following general objectives:

introduction to behavioral disorders, causes, interventions; familiarity with strategies to reduce the causes of the continuity of behavioral disorders; improving communication methods and interpersonal interventions of parents with each other; improving parent-child interaction methods; improving communication methods and interpersonal interactions between family members: brothers and sisters, etc.; teaching the management of adolescents' challenging behavior.

After collecting information, in order to analyze the data, in addition to descriptive statistics, multivariate regression analysis was used.

Results
Hypothesis I
Family-based interventions affect adolescents' self-efficacy.
Since the research plan is quasi-experimental and two heterogeneous groups with pre-test and post-test, covariance analysis is used to analyze the data.

**Table 1**: Examining the homogeneity of regression slopes - the effect of experimental* group on self-efficacy

<table>
<thead>
<tr>
<th>Source of variations</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>mean squares</th>
<th>F-value</th>
<th>level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental* Group</td>
<td>34.73</td>
<td>1</td>
<td>34.73</td>
<td>0.98</td>
<td>0.32</td>
</tr>
</tbody>
</table>

The above table shows that the interaction between random auxiliary variable (pre-test) and independent variable is not significant at P≤0.05. As a result, the regression slope is almost parallel in control and experimental groups and the assumption of the homogeneity of regression slopes is confirmed. Therefore, it can be said that the interactive effect of (experimental and control) group and test (pretest and posttest) on the dependent variable (self-efficacy) is not significant, so the use of ANCOVA is allowed.

**Table 2**: Covariance analysis, the effect of group on self-efficacy

<table>
<thead>
<tr>
<th>Source of variations</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>mean squares</th>
<th>F-value</th>
<th>level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>independent variable</td>
<td>1125.09</td>
<td>1</td>
<td>1125.09</td>
<td>89.65</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

The F value obtained in self-efficacy variable is equal to 89.65, which is significant at P≤0.01. The average pre-test of the experimental group is 39.16, which has reached 99.58 in the post-test with the increase of score. With regard to the increase of post-test score in the experimental group, it can be said that family-based interventions affect adolescents' self-efficacy.

Given that self-efficacy variable contains three components as social, educational, and emotional self-efficacy, multivariate covariance analysis has been used to investigate the effect of family-based interventions on its components.

First, in order to assess the assumptions of multivariate covariance analysis, the homogeneity of variances has been examined using Levine test.

**Table 3**: Levine Test - Examining homogeneity of variances
The F-values obtained indicate that the variance differences between groups are not significant at P≤0.05. Therefore, the variance of the groups is not significantly different and the groups are actually homogeneous. Thus, the use of multivariate analysis of covariance is allowed.

**Table 4**: Credit indices of ANCOVA in family-based interventions on the components of self-efficacy

<table>
<thead>
<tr>
<th>Credit indices</th>
<th>Index value</th>
<th>F-value</th>
<th>level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillai's effect</td>
<td>0.50</td>
<td>2.01</td>
<td>0.0001</td>
</tr>
<tr>
<td>Wilks' lambda</td>
<td>0.50</td>
<td>2.01</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

The value of Pillai's effect is 0.50 and Wilks' lambda value is 0.50, too and both indicators are significant at P≤0.01. Therefore, dependent variables are significantly different in experimental and control groups.

**Table 5**: Multivariate analysis of covariance on the impact of family-based interventions on the components of self-efficacy

<table>
<thead>
<tr>
<th>Statistical characteristics</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>Mean squares</th>
<th>F-value</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source of variations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social self-efficacy</td>
<td>1051.49</td>
<td>1</td>
<td>1051.49</td>
<td>19.31</td>
<td>0.0001</td>
</tr>
<tr>
<td>Educational self-efficacy</td>
<td>939.75</td>
<td>1</td>
<td>939.75</td>
<td>16.04</td>
<td>0.0001</td>
</tr>
<tr>
<td>Emotional self-efficacy</td>
<td>993.11</td>
<td>1</td>
<td>993.11</td>
<td>17.44</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

Separate examination of dependent variables indicates that the obtained F-value in all components is significant at P≤0.01. In Social self-efficacy component, pre-test score is 13 and post-test score is 34.83; in educational self-efficacy component, pre-test score is 14.41 and post-test score is 34.33; in emotional self-efficacy component, pre-test score is 11.75 and post-test score is 30.41. Considering the increase of post-test scores in the experimental group, it can be said that family-based interventions have positive effects on self-efficacy components.

**Hypothesis II**
Family-based interventions affect parent-child interactions in adolescents.
Due to multivariate dependent variable, multivariate analysis of covariance has been used.
First, in order to assess the assumptions of multivariate covariance analysis, the homogeneity of variances has been examined using Levine test.

**Table 6:** Levine Test - Examining homogeneity of variances.

<table>
<thead>
<tr>
<th>Components</th>
<th>F-value</th>
<th>level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conflict</td>
<td>0.83</td>
<td>0.37</td>
</tr>
<tr>
<td>Proximity</td>
<td>1.00</td>
<td>0.42</td>
</tr>
<tr>
<td>Positive relationship</td>
<td>0.84</td>
<td>0.35</td>
</tr>
</tbody>
</table>

The F-values obtained indicate that the variance differences between groups are not significant at $P \leq 0.05$. Therefore, the variance of the groups is not significantly different and the groups are actually homogeneous. Thus, the use of multivariate analysis of covariance is allowed.

**Table 7:** Credit indices of ANCOVA in the effect of family-based interventions on the parent-adolescent interaction

<table>
<thead>
<tr>
<th>Statistical characteristics</th>
<th>Source of variations</th>
<th>Index value</th>
<th>F-value</th>
<th>level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pillai's effect</td>
<td></td>
<td>0.40</td>
<td>5.63</td>
<td>0.0001</td>
</tr>
<tr>
<td>Wilks' lambda</td>
<td></td>
<td>0.60</td>
<td>5.63</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

The value of Pillai’s effect is 0.40 and Wilks’ lambda value is 0.60, and both indicators are significant at $P \leq 0.01$. Therefore, dependent variables are significantly different in experimental and control groups.

**Table 8:** Multivariate analysis of covariance on the impact of family-based interventions on parent-adolescent interaction

<table>
<thead>
<tr>
<th>Statistical characteristics</th>
<th>Source of variations</th>
<th>Sum of squares</th>
<th>Degrees of freedom</th>
<th>Mean squares</th>
<th>F-value</th>
<th>Level of significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conflict</td>
<td></td>
<td>749.18</td>
<td>1</td>
<td>749.18</td>
<td>20.04</td>
<td>0.0001</td>
</tr>
<tr>
<td>Proximity</td>
<td></td>
<td>559.43</td>
<td>1</td>
<td>559.43</td>
<td>17.55</td>
<td>0.0001</td>
</tr>
<tr>
<td>Positive relationship</td>
<td></td>
<td>683.21</td>
<td>1</td>
<td>683.21</td>
<td>18.19</td>
<td>0.0001</td>
</tr>
</tbody>
</table>
Separate examination of dependent variables indicates that the obtained F-value in all components is significant at $P \leq 0.01$. In conflict component, pre-test score is 67.18 and post-test score is 39.43; in proximity component, pre-test score is 21.11 and post-test score is 38.64; in Positive relationship component, pre-test score is 9.26 and post-test score is 23.54. Considering the increase of post-test scores in the experimental group little change of scores in control group, it can be said that family-based interventions have positive effects on parent-adolescent interaction.

**Discussion and Conclusion**

The present study aimed to investigate the effectiveness of family-based interventions on parent-adolescent interaction and adolescents' self-efficacy. The research data were analyzed in accordance with the mentioned objective. Analysis of the findings showed that family-based interventions affect parent-child interaction including conflicts, proximity, and positive relationship, as well as self-efficacy, which is associated with social, educational, and emotional components. In fact, family-based intervention program has been able to change the level of parents' adolescents interactions as well as adolescents' self-efficacy significantly after the implementation. According to the obtained statistics, the pre-test and post-test mean scores are significantly different in the experimental and control groups while the control group has not changed remarkably. Therefore, the fist hypothesis of the research that family-based interventions change adolescents' self-efficacy is confirmed. To justify this matter, it can be said that self-efficacy has a key role in self-autonomy of mental states in adolescents and since the role of family in the life of adolescents is very important, the best opportunity to determine their needs and the key element in their self-efficacy are their families. True parents' integrations actually predict self-efficacy in their adolescents.

The above findings are consistent with the studies conducted by Larson et al. (2009), King et al. (2010), Rabiee et al. (2013), and Hatami et al. (2016). Rabiee et al. (2013) figured out that family-intervention programs would increase the level of self-efficacy, self-esteem and life quality of children in families. Hatami et al. (2016) have stated in their findings that teaching self-efficacy will directly increase self-efficacy and self-awareness skills in adolescents.

In fact, in this program parents got familiar with cognitive-behavioral training and learned the ways to reduce constant causes of behavioral disorders: to improve communication conditions and interpersonal interactions between parents; to improve parents-child interaction methods, and to improve interpersonal interactions and communication methods between the family members. Therefore, equipping parent with true interaction with their adolescents can greatly prevent the incidence of problems among them.

Furthermore, considering the increase of post scores in the experimental group and little change of scores in the control group, the effect of family-based interventions on promoting parent-child interaction is obvious and actually, the second hypothesis of the research, which states family-based interventions change parent-adolescent interaction, is confirmed. Given the results of this hypothesis and the components of conflict, proximity, and positive relationship in pre-test and post-test scores of parent-adolescent interaction.
interaction as well as the increase of scores, it can be stated that family-based interventions predict the components of parent-adolescent interaction; in other words, family-based interventions have positive effects on interactions between parents and adolescents. Family is one of the factors influencing children and adolescents.

It is also worth noting that training courses with simultaneous presence of parents and without children, meetings for mothers, adolescents, and finally special sessions for each family with family-based approach were held like the first hypothesis and with the same style and led to the increase of parents' skills and improvement of parent-adolescent interaction which eventually resulted in acquiring developmental skills by adolescents. Therefore, it can be concluded that the intervention program has been only able to reduce coping behaviors and conduct problems in the experimental group. Consistent with it, Law et al. (2005), Chen et al. (2006), Moxley (2009) and Fabriquez et al. (2016) got similar results in their findings and the mentioned results are consistent by the result obtained through the confirmation of the second hypothesis. Moreover, according to the findings of Fabriquez (2016), extensive and true interactions between adolescent and mother, adolescent and father, interactions between family members have positive effects on balanced and beneficial interactions between them.

This study showed that appropriate interactions in family can be used as one of the effective interventions in this regard and in explaining the results of the research hypotheses with regard to the strong background and researchers' analysis it can be declared that by training true and accurate behavior, family-based interventions will affect the components of self-efficacy and parent-adolescent interactions. Consequently, family training with a special look is particularly significant and family training programs should be prioritized in this regard.

**Limitations of the study:**
Since the research sample is taken from Tehran, it is necessary to act cautiously in generalizing the results to other parts of country.

**Suggestions**
It is recommended to conduct this research in other areas and to compare the results with each other.

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