Introduction

Aggressiveness and defiant behaviors are one of the most common reasons for the referral of children and adolescents to psychiatric assessments [1]. Oppositional Defiant Disorder (ODD) is defined as a pattern comprising irritated and provocative manner, oppositional behavior, or retaliation in a child that lasts for at least six months. The main feature of Oppositional Defiant Disorder (ODD) is high level of emotional reactivity and frustration intolerance.

According to the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5), the prevalence rate for this disorder is reported to be between 1% to 11% and is estimated to be at an average of 3.3% [2]. In the absence of treatment, in more than a third of patients, conduct disorder will occur, especially in those with an early disorder and about 10% of the patients will eventually suffer from antisocial personality disorder [3,4].

Children and adolescents with disruptive behavior disorders (oppositional defiant disorder, conduct disorder and early forms of anti-social behaviors) [5] face serious problems due to incompatibilities in family relationships. Typically, in relation to their children, the families of these people are caught in negative cycles and this leads to an increase in the problems of children and their families and threatens the mental health of the whole family [3].

Findings by Evans, Sibley, Serpell [6] showed that the delinquent and oppositional behaviour of the young adolescent to parents is one of the most effective factors in caregiver strain over time. Seipp and Johnston’s research [7] also suggests that children with oppositional defiant behaviors are one of the most important predictors of stress in parents. Other studies also confirm this point [8-10].

Some studies have pointed to the impact of the history of psychiatric disorders in parents on the prevalence of behavioral problems in children [11,12]. Children of mothers with symptoms of depression show a higher prevalence of behavioral problems than those who have non-depressed mothers [13,14]. Children of parents with bipolar disorder are also exposed to multiple psychological
disorders, including attention deficit hyperactivity disorder, conduct disorder and oppositional defiant disorder [15].

In a meta-analysis on 193 studies that examined the severity of the relationship between mothers’ depression and behavioral problems in children, findings showed that maternal depression was significantly associated with high levels of internalizing and externalizing behaviors in children [16].

Parental anxiety is also associated with child behavioral problems [17]. The findings of Meadows, McLanahan and Brooks-Gunn [18] showed that anxiety/depression of mothers was associated with an increased risk of anxiety/depression, attention deficit disorder and oppositional defiant disorder in children, while anxiety/depression in fathers had no significant relationship with these cases. On the other hand, Burstein, Ginsburg and Tein [19] did not find any relationship between externalizing behaviour and parental anxiety. Findings of Kashdan et al. [20] also showed that parental anxiety is inversely related to parental warmth and positive involvement and is directly related with negative parenting, while parental depression has only a negative relation with social distress.

Although research has mainly focused on the interactive relations between parental distress and behavioral disorders in children [12,21], some findings reveal contradictory results. For example, the findings of the study by Davarifard and Mami [22] showed that there is no significant difference between the two groups of mothers of children with maladaptive behavior and normal behavior in terms of personality traits and parenting practices.

In the research of Yusefi et al. [23], the prevalence of defiant disorder was more frequent among parents of children with a history of psychiatric disorders, but this relationship was not significant. In addition, although there are several factors contributing to the formation of defiant disorder, it is evident from a review of the related literature that little research has specifically examined the etiological factors of oppositional defiant behaviors.

In fact, most existing research has studied the risk factors associated with all disorders of maladaptive behaviors and most often as a combination of causes of oppositional defiant disorder and conduct disorder [2,24]. Moreover, most researchers are investigating samples with severe maladaptive behaviors, such as juvenile delinquents or clinical specimens. Therefore, the etiology of children at risk is felt more [25].

The discovery of effective treatments for oppositional defiant disorder is also subject to a specific study on the causes of this disorder based on age groups and behavioral severity of the disorder [26].

According to the mentioned cases and considering that behavioral disorders in children, especially disorders with maladaptive behaviors, have a significant emotional and financial burden for individuals, families, schools, organizations and society [27], the accurate identification of the risk factors affecting the disorder in non-clinical cases, in addition to the research benefits and the etiology of this disorder, will be effective at three levels of prevention.

Therefore, the purpose of this study was to compare depression, anxiety and stress in mothers of children with and without oppositional defiant behaviors in elementary schools.

Method

The present study was causal-comparative. The statistical population comprised all mothers of male primary school students in the academic year of 2017-18 in Shiraz.

To collect data, after obtaining a license from Shiraz University, Fars Educational Directorate, Secretariat of the Fars Research Council and Office of education in 1 and 3 districts of Shiraz, four elementary male schools were selected through random cluster sampling method. These schools had a total of 54 classes and 1720 students.

After attending the schools and explaining to teachers about identifying children who show defiant and aggressive behavior, they were asked to fill in the teacher’s Child Symptom Inventory-4 (CSI-4) in the selected samples. 158 questionnaires were completed in which 114 questionnaires of three subscales (attention deficit hyperactivity disorder, oppositional defiant disorder and conduct disorder) had higher scores than the cutting standard scores. Then, teachers were asked to identify children with the lowest grades in these questions and high performance in class as the same number of children with defiant and aggressive behaviors in each class, with the advice of the school principal. Afterwards, the research tools and the Parent’s Child Symptom Inventory were sent as postal packages to the students of the two groups and they were asked to submit questionnaires to their parents. The questionnaires were collected after parents completed the questions and delivered to the school management. Out of 228 questionnaires sent to parents, 221 questionnaires were returned.

In this study, 42 mothers of students whose children’s cutting scores were higher in the defiance and challenges subscales that the cutting score (based on teacher’s and parents’ inventories) were selected. Then, 42 parents of students whose children had low scores in these three sub-scales and were similar in the comparison. In this research, three tests of Depression, Anxiety and Stress Scale as well as Parent’s and Teacher’s Child Symptom Inventories were used.

Depression, Anxiety and Stress Scale (DASS-21)

This questionnaire has been prepared in two versions. The short version consists of 21 self-reported words, with three subscales related to negative emotional symptoms (depression, anxiety and stress). Each of these three sub-scales has seven 4-scale questions between 0 and 3 (not experienced at all, equal to zero to very much experienced equal to 3) [28].

Antony, Bieling, Cox, Enns, Swinson [29] analyzed the above scale based on factor analysis. The results of their research indicated that there were three factors: depression, anxiety and stress. The alpha coefficient of these factors was 0.97, 0.92 and 0.95, respectively. In Iran, the results of the re-evaluation for depression, anxiety and stress scale were 0.81, 0.78 and 0.80 respectively and the result for the whole scale was 0.82 [30].

Results of Cronbach’s alpha were 0.85, 0.75 and 0.87, respectively. In the present study, Cronbach’s alpha for depression, anxiety and stress scale were 0.92, 0.91 and 0.91, respectively and for the whole scale it was 0.97.

Child Symptom Inventory-4 (CSI-4) (Sprakin, Gadow, 1994, cited in 31).

Classification scoring procedure (cutting and screening) for
behavioral and emotional disturbances in children. Two scoring methods are designed for this questionnaire. The classification method (cutting and screening), is considered for never and rarely options as zero and for sometimes and mostly options as 1. Also, scoring method based on the severity of the symptoms is considered so that never equals 0, rarely 1, sometimes 2 and mostly 3 [31].

The above tool has two parents and teacher’s versions. In this research, the first 41 statements of the inventory were used which related to externalizing behavior disorders. These questions assess three types of attention deficit hyperactivity disorder, oppositional defiant disorder and conduct disorder.

Child Symptom Inventory has been used in several research [32,33]. In the study of Grayson and Carlson [34], the sensitivity of this test for oppositional defiant disorder, conduct disorder and attention deficit hyperactivity disorder was reported to be 0.93, 0.93 and 0.77, respectively.

In Iran, results of the internal consistency through Cronbach’s alpha were reported to be: hyperactivity / attention deficit (impulsive) (0.76), hyperactivity / attention deficit (attention deficiency) (0.76), attention deficit hyperactivity (combined) (81%), oppositional defiant disorder (0.67), conduct disorder (0.71) [35].

In the present study, the teacher and parents’ inventories were used as instruments. The reliability of the scores was gained through Cronbach’s alpha for the scores of oppositional defiant disorder subscale, which was for the teacher’s version 0.80 and for the parents’ version 0.87.

### Demographic Factors Review Inventory

This is a researcher-made inventory to investigate demographic factors. In this form, factors such as the age of the mother, the educational background and the age of the child and parents’ education, occupation and income have been mentioned.

### Findings

The demographic information of the participants in the research is discussed below. The mean age of children was 9.5 years with a standard deviation of 1 year and 4 months. The mean age of mothers was 34 years and 7 months with a standard deviation of 4 years. In terms of maternal education, 7.1% were below diploma, 14.3% had a diploma, 57.1% had an associate degree, 17.9% had a bachelor’s degree and 3.6% had a master’s degree. All mothers in both groups were housewives.

Regarding the father’s education, 8.3% were below diploma, 8.3% had a diploma, 66.7% had an associate degree, 12.5% had a bachelor’s degree and 4.2% had a master’s degree and in terms of father’s job, 8.3% were unemployed, 23.3% workers, 37.5% self-employed and 20.8% employees. In terms of income, 67.9% mentioned their income to be low and 32.1% mediocre.

Prior to performing statistical tests, the equivalence assumptions for error variances were calculated through Levin’s test and the normality of the distribution of variables by Kolmogorov and Smirnov tests. The results of the Kolmogorov and Smirnov tests and the Levin’s test for all variables were significantly higher than 0.01. Therefore, the distribution of the variables was normal and variances were homogeneous. Independent samples t-test was used to compare the mean of depression, anxiety and stress and total scale in the two groups of mothers of children with and without oppositional defiant behaviors. The mean and standard deviation and independent samples t-test results are presented in Table 1.

As the results of independent samples t-test show there is a significant difference between all the research variables, so that the mean scores of depression P < 0.000, anxiety P < 0.001, stress P < 0.004 and scores of total scale P < 0.000, in the mothers of children with oppositional defiant behaviors were significantly more than the mothers of the comparison group.

### Discussion

The purpose of this study was to compare anxiety, depression and stress in the parents of children with and without oppositional defiant behaviors. The results of comparing anxiety, depression and stress tests and the total scale showed a significant difference in these variables in two groups, so that the mean scores of these factors in the mothers of children with oppositional defiant behaviors were higher than the mothers of the comparison group.

Although no direct investigation of these factors has been found, the results are consistent with the findings of various studies that looked at similar structures in similar groups [16,21,36,37]. Findings show that high levels of maladaptive behaviors in a child are associated with symptoms of depression, anxiety and stress in parents and probably this is a two-way communication [36]. In explaining these findings, it can be said that parental depression, anxiety and stress can be significantly associated with their daily exposure to hostility and behavioral problems in children.

Children with oppositional defiant behaviors are defined as typical individuals with angry and provocative manner, oppositional behaviors, or retaliatory behaviors with high levels of emotional responsiveness and intolerance of failure [2]. Therefore, parents who are exposed to such behaviors on a daily basis are more vulnerable.

In a longitudinal study in a 60-month period, the results showed that the primary maladaptive behaviors of the child predicted the

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**Table 1: Mean, standard deviation and results of comparison of scores of mothers of children with and without oppositional defiant behaviors.**

<table>
<thead>
<tr>
<th>Group variable</th>
<th>Without Oppositional Defiant Behaviors</th>
<th>With Oppositional Defiant Behaviors</th>
<th>t Test</th>
<th>sig</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Depression</td>
<td>9.09</td>
<td>2.61</td>
<td>19.9</td>
<td>5.73</td>
</tr>
<tr>
<td>Anxiety</td>
<td>10.29</td>
<td>2.58</td>
<td>20</td>
<td>5.16</td>
</tr>
<tr>
<td>Stress</td>
<td>10.95</td>
<td>2.89</td>
<td>21.1</td>
<td>4.75</td>
</tr>
<tr>
<td>Whole scale</td>
<td>30.33</td>
<td>7.42</td>
<td>61</td>
<td>14.72</td>
</tr>
</tbody>
</table>

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future behavior of alcohol consumption by the mother. High alcohol intake is a clinical symptom of distress in adults. Such parents may excessively consume alcohol due to the effects of stress to escape from life problems and disappointing experiences [37].

Researchers have also pointed to the interrelationship between these variables and parents’ depression has been known as a major risk factor for behavioral problems in children [38]. Maternal depression is a risk factor in the sense of lack of support in preschool children and support in this age is related to children’s emotional and behavioral abilities. Maternal depression causes an undesirable interaction between mother and baby and leads to unsafe attachment in the baby [39]. This is while attachment problems are known as a strong predictor for the severity of the symptoms of oppositional defiant disorder in schoolchildren [40]. In an integrated model with 4 hypothetical mechanisms, researchers have raised the reasons for the impact of a history of psychiatric disorders in the mothers with maladjustments in children.

From the viewpoint of hereditary researchers, inherent ineffective mechanisms, exposure to cognitive and behavioral disturbances, negative emotions of the mother and the stressful environment of the child are factors that transmit disturbances to the child.

The researchers considered the three factors of father’s health and his relationship with the child, the period and time of maternal depression and child characteristics as interactive factors [41]. Accordingly, it is emphasized that attempts should be enhanced to identify and treat depression in mothers who are planning to become pregnant [13], also mothers whose children have behavioral problems should be examined for the possibility of depression, anxiety and stress.

Conclusion

Overall, the results of the research showed that not only mental health of mothers can have significant effects on children’s oppositional defiant behaviors, but also the potential negative effects of children’s oppositional defiant behavior on the depression, anxiety and stress of mothers is an important factor which increases the vulnerability and emotional and economic burden of the family and society. Accordingly, it is recommended that children at risk ought to be identified using a screening method in schools. In addition, the mothers whose children have behavioral problems should also be evaluated for the likelihood of depression, anxiety and stress and take advantage of professional interventions and training.

Limitations of the study

The present research had limitations besides findings; the sample used in this study included mothers of elementary school students, therefore, the generalization of research findings to other classroom levels may be limited.

The reliance of the research findings on data obtained from individuals’ personal reports about existing variables can also be noted as another constraint of the study. Therefore, conducting research in wider communities such as kindergarten apprentices and junior high school students can be useful.

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