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Comparing the Effectiveness of Written Emotional Disclosure Training and Cognitive-Behavioral Group Training on Internalizing and Externalizing Disorders of Students in Elementary School

Mohammad Raesi[1], Faridehsadat Hoseini[✉2], Yousef Dehghani[3]

1. M.A. Student, Persian Gulf University, Bushehr, Iran

2. Associate Professor. Faculty of Humanities, Department of Psychology, Persian Gulf University, Bushehr, Iran, Corresponding Author email: fhoseini@pgu.ac.ir

3. Associate Professor, Faculty of Humanities, Department of Psychology, Persian Gulf University, Bushehr, Iran

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ABSTRACT

Objective: The purpose of this study is to determine the effectiveness of Written Emotional Disclosure Training and Cognitive-Behavioral Group Training on the internalizing and externalizing disorders of students in elementary school.

Methods: This study presents a quasi-experimental design incorporating a pretest-post-test control group. A total of 45 participants were chosen from the second-grade elementary students using random sampling methods. The research utilized various instruments including The Difficulties in Emotion Regulation Scale (DERS), Kovacs' Children's Depression Inventory (CDI), Shahim Relational and Explicit Aggression Scale, and The Conners' Teacher Rating Scale (CTRS-R). The participants were divided into three equal groups of 15 individuals each, representing the first, second, and control groups. All participants underwent the initial pretest phase. Subsequently, the first group received 10 sessions of Cognitive-Behavioral Group Training, the second group received 4 sessions of Written Emotional Disclosure Training, while the control group did not receive any training. Following this, a post-test was conducted on all participants. The data obtained were analyzed using multivariate analysis of covariance (MANCOVA).

Results: The results revealed a significant variance in the efficacy of Cognitive-Behavioral Group Training and Written Emotional Disclosure Training across the experimental and control groups during the post-test. This suggests that both interventions can effectively mitigate internalizing and externalizing issues among elementary school students. Furthermore, no significant difference emerged between those who underwent Cognitive-Behavioral Group Training and those who underwent Written Emotional Disclosure Training in terms of internalizing and externalizing problems, indicating similar levels of effectiveness.

Conclusions: The study implies that both Cognitive-Behavioral Group Training and Written Emotional Disclosure Training are cost-effective, efficient, and compatible strategies for addressing internalizing and externalizing problems in individuals.

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Introduction

Childhood is one of the most critical stages of one's life in which the foundation of one's personality is laid out and one's character is shaped. The majority of maladaptive behaviors and mental disorders in adulthood develop due to negligence towards emotional-behavioral problems during childhood which seize or deter the proper process of growth and development. (Cartright-Hatton, 2015) As a result, this issue has gained much interest from the scientific community in recent years. (Bozkurt & Sahin, 2019)

Childhood mental disorders can be divided into two broad categories: 1) Internalizing Problems: include problems that are experienced "within oneself," and which often accompany a sense of internal discomfort. Emotional problems including emotional regulation and depression fall into this category. 2) Externalizing Problems: include conflicts with others and their expectations. Externalizing problems are those that affect one's surrounding environment and people, including aggression and attention-deficit/hyperactivity disorder. Today, these disorders are widely categorized as behavioral disorders. (Wiley, 2005; Routang & Kanfer, 2006)

Difficulty in emotion regulation is one of the internalizing disorders in children which begs for further scientific research (Fischer & Tachni, 2015). According to the latest studies, more than half of mental and all personality disorders are accompanied by some difficulties in emotion regulation. (Groos, 2005) Based on the latest research carried out on the correlation between cognitive-emotional regulation and mental disorders, maladaptive cognitive-emotional regulation plays an important role in creating distress in the field of abnormal psychology. (Aldao & Nolen-Hoeksema, 2010) Depression is one of the severe internalizing disorders that negatively impact one's performance and drains one's motivation. A depressed person suffers from relatively low levels of mental energy and fails to concentrate on tasks at hand effectively. (Hasanzadeh et al., 2009)

Aggression is one of the externalizing disorders in children that highly impacts their educational status and social development which is also known as one of the most common behavioral problems in students (Kauffman & Hallahan, 2016). Aggression has adverse effects on children's development. When it comes to aggressive behavior, what highlights its importance to the researchers is the adverse effects it has on interpersonal and intrapersonal behaviors. (Alice, 2014)

Attention Deficit/Hyperactivity Disorder (ADHD) is another internalizing disorder in children that has become one of the common mental disorders during childhood (Lufi & Paris-Plus, 2013). More

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than 5% of children across the globe suffer from ADHD which is accompanied by poor educational and social outcomes. (Ramtkar et al., 2010) Children who suffer from ADHD cannot effectively communicate with their peers. This inability shall result in rejection from their peers which would ultimately cause their social isolation (Nelson et al., 2014).

Emotional Disclosure is one of the intervention techniques that have been widely used in recent decades for the treatment of internalizing and externalizing disorders during childhood. Many resources have referred to Written Emotional Disclosure as Paradigm Writing. (Mikalvich & Miro Cooper, 2005; Slatcher & Penne Baker, 2006; Penne Baker & Chang, 2007). Written Emotional Disclosure was first introduced by Baikie and Wilhelm through their experimental research. Emotional Disclosure, like face-to-face and in-person psychoeducation, helps one develop insight into one's experiences through empathy and support training which ultimately reduces one's negative cognitive load. Therefore, emotional disclosure training improves one's cognitive performance and alleviates depression symptoms (Penne Baker, 2003). According to the latest studies, writing has contributed to the improvement of physical and mental health in a large number of individuals (Baikie and Wilhelm qtd. in Faratarli, 2006).

Cognitive-Behavioral Group Training, which has resulted from the combination of behavioral techniques and cognitive strategies explored within group settings, is another technique used to alleviate negative emotions. During Cognitive-Behavioral Group Training people who suffer from emotional distress receive professional training to help them change their personalities and alter their cognitive processing through hypothetical structures and interactions with other members of the group. As a result, members of the group will be able to change their behavior by changing their thoughts, beliefs, and attitudes. (Khorrami & Seyf, 2008; Pour Afkari, 2003) This technique helps resolve the issues regarding impulse control, problem-solving, and self-control (Kallanan & Russell, 2016) and improves school performance in doing their homework more readily, concentrating on their tasks more effectively, and spending more time reading in children who suffer from behavioral disorders. Moreover, Cognitive-Behavioral Group Training reduces destructive behavior in children suffering from ADHD (Tian & Dingel, 2012).

In general, studies indicate that Cognitive-Behavioral Group Training and Written Emotional Disclosure Training bring about several mental and physical benefits for one that enhances one's overall cognitive and bodily performance (King & Smith, 2015). Written Emotional Disclosure

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can improve coping skills in the face of unwanted and destructive circumstances (Lamli & Pronxono, 2003; Penne Baker & Sharp, 2005). Moreover, by alleviating negative emotions caused by negative patterns of thought, Written Emotional Disclosure can alleviate symptoms of depression (Lypor, 2003; Slatcher & Penne Baker, 2007; Garcion & Cohen, 2009).

So far, the body of studies that were carried out on the effectiveness of Cognitive-Behavioral Group Training and Written Emotional Disclosure Training mainly involved adult participants and failed to address the impact of these methods during childhood. Therefore, this study has been carried out to address this issue. The main purpose of this study is to provide a comparative analysis of the effectiveness of Cognitive-Behavioral Group Training and Written Emotional Disclosure Training on internalizing (difficulties in emotion regulation and depression) and externalizing (aggression and ADHD) disorders during childhood.

Material and Methods

This is a quasi-experimental study following a pretest and post-test design with a control group. The participants of the study were divided into three groups, two experimental and one control group. All three groups were pretested before receiving the training (except for the control group that received no training.) After the training sessions, all three groups underwent the post-test stage.

Study Population, Sample Population, and Sampling Method

The study population included all the elementary students of the Northern District of Rudan town (Jaghin) in the 2020-2021 school year which consisted of 140 students. Using the random sampling method, 45 participants were selected to take part in the study. After the sex and age matching of the participants in the controls, the participants were randomly placed in three different groups.

To collect the data, the following research tools were used in this study:

- **Difficulties in Emotion Regulation Scale (DERS):**

The Difficulties in Emotion Regulation Scale (DERS) developed by Gratz and Roemer (2004) is a 36-item self-report measure of six facets of emotion regulation. Each sub-scale has 4 items (perceived emotion regulation, coping styles, mood management, and unreliability). Halajani

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(2010) determined the *reliability of* the items by Cronbach's alpha coefficient and bisection method and reported them as 0.84 and 0.76, respectively. Aminian (2009) to determine the validity of The DERS compared the scores obtained in this scale with The Zuckerman Sensation-seeking Scale (SSS) which indicated a significant correlation between these scales denoting the validity of The DERS.

- **Kovacs' Children's Depression Inventory (CDI):**

This inventory was developed by Maria Kovacs in 1997 for children aged from 7 to 17 years. CDI is a 27-item measure of five subscales of negative moods. Cronbach's alpha coefficient reported the internal consistency of this inventory at 0.86. The concurrent and Discriminant validity of this inventory is also reported within the accepted rate. (Logan et al., 2013) This study discovered a significant correlation between Beck's Depression Inventory (BDI) and Kovacs' Children's Depression Inventory (CDI) which indicated their convergent validity at 0.79 and 0.78, respectively. (Harrington, 2001)

- **Shahim's Relational and Explicit Aggression Scale**

The Relational and Explicit Aggression Scale (Shahim, 2006) is a 21-item scale that measures relational and explicit aggression and its intensity and frequency. This questionnaire is filled out by the teacher. This scale consists of three subscales of physical (7 items), reactive-verbal and hyperactive (6 items), and relational aggression (8 items). To determine the validity of the scale factor analysis was used which accounted for 59% variance. The cutoff point for the determination of the aggressive children in each subscale was the standard deviation greater than the mean. Cronbach's alpha coefficient for the entire scale was reported at 0.91 which was within the acceptable range. Cronbach's alpha coefficient for physical, relational, and reactive-verbal aggression was reported at 0.85, 0.89, and 0.83, respectively. (Shahim, 2006)

- **The Conners' Teacher Rating Scale (CTRS-R)**

The Conners' Teacher Rating Scales-Revised (CTRS-R) (Conners, 1990) is a 38-item questionnaire that is filled out by the teacher. The correlation coefficient for the subscales of conduct disorders, inattentiveness/daydreaming, hyperactivity, anxiety/shyness, and passivity were reported at 0.86, 0.74, 0.85, 0.52, and 0.29, respectively. The test-retest reliability of the entire scale was reported at 0.76 and it ranged from 0.68 for passivity to 0.82 for conduct disorders. The Cronbach's alpha coefficient was reported at 0.86 for the entire scale and ranged from 0.74

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for hyperactivity to 0.89 for inattentive daydreaming (Shahim et al., 2007). The validity of the subscales of anxiety and hyperactivity was reported at 0.52 and 0.80, respectively. Conners et al. (1999) reported the reliability of this scale at 0.90.

Intervention Method: Cognitive-Behavioral Group Training

In this study, the second experimental group underwent 10 sessions of Cognitive-Behavioral Group Training; each session lasted for 45 minutes. Cognitive-Behavioral Group Training sessions are briefly explained in the following. Fredric Rutgers and Trin Ann Neguin (Bailing et al., 2008) have confirmed the reliability of this intervention technique.

Table 1. Cognitive-Behavioral Group Training Sessions Outline

Session	Content
1	Introduction of the group members and an insight into the program
2	Introduction to different emotional states using images, paying attention to others' feelings by studying their facial expressions and body language
3	Introduction to physical changes in the body, studying the relationship between physical symptoms and patterns of thoughts, emotions, and behaviors, and assigning homework to
4	Helping to identify thoughts, coping with negative thoughts, teaching how our thoughts shape our feelings and consequently our actions
5	Understanding the relationship between thoughts, emotions, bodily signals, and actions, observing the effectiveness of changing thoughts, emotions, and bodily signals
6	Teaching the possibility of choosing different ways of thinking than the way we normally do, asking questions that would help us understand what concerns us the most in a better way
7	Teaching alternative approaches to view our problems, taking a scientific approach towards our problem-solving methods by observing the facts and evidence at hand instead of relying on pure assumptions
8	Introducing a multi-step goal-setting plan, encouraging the group members to cooperate and support each other through their problems, challenging and cognitive restructuring negative thoughts
9	Teaching group members how one member is different than the other and consequently shall be concerned about different things, identifying the various methods people use to shield themselves from the things that cause them anxiety
10	Learning to solve problems by breaking them into small and attainable steps to take one at a time, learning that modeling people who solve their problems effectively can help us in solving our problems

Intervention Method: Written Emotional Disclosure Training

The first experiment group took 4 sessions of Written Emotional Disclosure Training each of which lasted for 45 minutes. Table 2 demonstrates an outline of Written Emotional Disclosure Training sessions. Penne Baker (1998-2003) has confirmed the reliability of this intervention technique.

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Table 2. Written Emotional Disclosure Training Sessions Outline

Session	Content
1	Writing traumatic experiences and personal secrets: the main goal is to write down your deepest thoughts and emotions about those traumatic experiences and secrets and how you have suffered as a result
2	Changing how children write about their traumatic experiences: using as many terms containing negative emotional charges (e.g. guilt, irritation, resentment) as possible and using as few words with positive emotional charges (e.g. happiness, benevolence, love) as possible
3	Understanding how one's thoughts and emotions are affected by others (e.g. parents, friends, or relatives) while writing about traumatic experiences
4	Using the third-person point of view instead of the first-person while narrating traumatic experiences (e.g. "Why did he/she do that?")

Results

Within the experiment groups and the control group, first, the descriptive measures will be discussed. Then, the study hypotheses will be expounded upon. Table 3 demonstrates the descriptive measures of the mean and standard deviation of the scores the participants gained in the pretest and post-test stages of the study.

Table 3. Descriptive data of variables in the pretest and posttest phases of three groups

Phase	Variable	WMDT		CBGT		Control	
		Mean	SD	Mean	SD	Mean	SD
Pretest	Emotion Regulation	72.96	88.22	84.94	03.21	72.97	75.24
	Depression	38.71	602.0	12.72	659.0	16.82	69.1
	Aggression	98.40	549.5	50.40	32.6	72.60	23.34
	Hyperactivity	48.37	50.7	00.41	37.7	08.43	04.8
Post-test	Emotion Regulation	48.89	20.33	04.94	39.21	40.95	18.36
	Depression	01.69	73.0	01.70	86.0	01.81	28.1
	Aggression	90.29	35.15	48.29	52.15	33.50	65.23
	Hyperactivity	14.31	35.7	22.8	746.9	40.39	369.8

Before analyzing the resulting data using multivariate analysis of covariance (MANCOVA), the perquisites of this method were studied carefully. To determine the normal distribution of the resulting data The Shapiro-Wilk test was performed. The results indicated a normal distribution of data ($p > 0.05$). To determine the assumption of homogeneity of regression slopes, we estimated the f values for the covariate and independent variable in all three study groups. Since the f value was not significant in any of these groups, the assumption of homogeneity of regression slopes was confirmed. Levene's Test was used to assess the equality of variances. Internalizing and externalizing disorders confirmed the assumption of the equality of variances. Moreover, Box's M

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test was used to check the equality of multiple variance-covariance matrices in the three groups. As a result, the equality of variance-covariance matrices was confirmed.

Multivariate analysis of covariance (MANCOVA) and The Bonferroni test as a follow-up test was used to determine the impact of independent variables on the internalizing disorders (e.g. emotion regulation and depression). Table 4 demonstrates the resulting data.

Table 4. Multivariate Analysis of Covariance (MANCOVA) results of internalizing disorders

Source	Dependent Variable	SS	DF	MS	F	P	Effect size
Group	Emotion Regulation	1914.43	2	957.22	33.95	0.0001	0.73
	Depression	11.61	2	5.80	49.47	0.0001	0.80
Statistical Error	Emotion Regulation	704.83	25	28.19			
	Depression	2.93	25	0.12			
Total	Emotion Regulation	19019.20	29				
	Depression	22.30	29				

Table 4 demonstrates a significant difference in emotion regulation and depression between the three groups. The Bonferroni follow-up test was administered to determine the differences between the three groups. Table 5 demonstrates the results of The Bonferroni follow-up test in the three study groups (Cognitive-Behavioral Group Training, Written Emotional Disclosure Training, and control group).

Table 5. The results of The Bonferroni follow-up test in the three study groups (internalizing disorders)

Variable	Group (I)	Group (J)	Mean Difference (I-J)	p
Emotion Regulation	Cognitive-Behavioral Group Training	Emotional Disclosure Training	0.424	1.000
		Control	-10.570*	.000
	Written Emotional Disclosure Training	Cognitive-Behavioral Training	-.424	1.000
		Control	-10.994*	.000
Depression	Cognitive-Behavioral Group Training	Emotional Disclosure Training	.238	.611
		Control	-.859	4.00
	Written Emotional Disclosure Training	Cognitive-Behavioral Training	-.238	.611
		Control	.621	.048

Table 5 demonstrates that both Cognitive-Behavioral Group Training and Written Emotional Disclosure Training alleviated students' problems with emotion regulation and depression. That is why the descriptive statistical measure of the mean for the students in the two experiment groups demonstrated is relatively lower than the students in the control group. However, no significant difference was observed between the students in the two treatment groups.

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Moreover, Multivariate Analysis of Covariance (MANCOVA) and The Bonferroni test as a follow-up test were used to determine the impact of independent variables on externalizing disorders (e.g. aggression and hyperactivity). Table 6 demonstrates the results of the Multivariate Analysis of Covariance (MANCOVA) of the effectiveness of Cognitive-Behavioral Group Training and Written Emotional Disclosure Training on externalizing disorders.

Table 6. Multivariate Analysis of Covariance (MANCOVA) results of externalizing disorders

Source	Dependent Variable	SS	DF	MS	F	P	Effect size
Group	Aggression	3694.59	2	1847.30	111.11	0.0001	0.90
	Hyperactivity	17.66	2	8.83	97.14	0.0001	0.89
Statistical Error	Aggression	415.64	25	16.63			
	Hyperactivity	2.27	25	0.09			
Total	Aggression	4773.87	29				
	Hyperactivity	24.30	29				

Table 6 demonstrates a significant difference between the groups in terms of aggression and hyperactivity. The Bonferroni follow-up test was administered to determine the differences between the three groups. Table 7 demonstrates the results of The Bonferroni follow-up test in the three study groups (Cognitive-Behavioral Group Training, Written Emotional Disclosure Training, and control group).

Table 7. The results of The Bonferroni follow-up test in the three study groups (externalizing disorders)

Variable	Group (I)	Group (J)	Mean Difference (I-J)	p
Aggression	Cognitive-Behavioral Group Training	Emotional Disclosure Training	0.50	1
	Cognitive-Behavioral Group Training	Control	-25.24*	.0001
	Emotional Disclosure Training	Control	-24.75*	.000
Hyperactivity	Cognitive-Behavioral Group Training	Emotional Disclosure Training	-.11	1.000
	Cognitive-Behavioral Group Training	Control	-1.77*	.000
	Written Emotional Disclosure Training	Control	-1.66*	.000

Table 7 demonstrates that both Cognitive-Behavioral Group Training and Written Emotional Disclosure Training alleviated students' problems of aggression and hyperactivity. That is why the descriptive statistical measure of the mean for the students in the two experiment groups is relatively lower than the students in the control group. However, no significant difference was observed between the students in the two experiment groups indicating that the two intervention methods were equally effective.

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Discussion

The purpose of this study is to determine the effectiveness of Cognitive-Behavioral Group Training and Written Emotional Disclosure Training on the internalizing and externalizing disorders of students in elementary school. The study findings reported a significant difference between the study groups in internalizing disorders (e.g. emotion regulation and depression). The study results indicated that after receiving Cognitive-Behavioral Group Training, students' performance in emotion regulation improved. Moreover, Cognitive-Behavioral Group Training alleviates the negative symptoms of depression in students. As a result, it can be suggested that Cognitive-Behavioral Group Training is effective since it allows the group members to understand the underlying reasons for some of their behaviors. During Cognitive-Behavioral Group Training, the coach allows the participants to break free from some of the things that have clouded their consciousness for so long and achieve useful insight about themselves and about the problems they are dealing with by asking questions. Cognitive-Behavioral Training allows one to understand one's flaws and by following behavioral strategies achieve one's desired goals. (Ramsey, 2010)

Moreover, study results indicate a significant difference between the experiment group that received Written Emotional Disclosure Training and the control group. That is why multiple researchers believe that emotional disclosure by overcoming defense mechanisms improves one's physical and mental state. (Penne Baker & Chang, 2007; Penne Baker et al., 2001) Writing allows one to express one's emotions without the risk of social isolation, adverse reactions, or irritation of others. (Moore & Watson, 2001) The findings of this study fall in line with the findings of previous studies, including Falahi et al. (2013), Ramezani et al. (2009), and Penne Baker (1995; 2003), who have confirmed the effectiveness of written emotional disclosure on alleviating symptoms of anxiety and depression in Multiple Sclerosis patients and university students. In sum, multiple studies indicate that Written Emotional Disclosure Training significantly improves one's physical health and well-being by alleviating the symptoms of anxiety and depression. (Qorbani, 2008; Rod & Penne Baker, 2006; String et al., 1999)

The results of the statistical analysis on the effectiveness of Cognitive-Behavioral Group Training and Written Emotional Disclosure Training on the externalizing disorders of students indicated that Cognitive-Behavioral Group Training alleviated the symptoms of externalizing disorders. The

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study results reported a decrease in aggression scores for the students who received Cognitive-Behavioral Group Training. By teaching new and necessary cognitive and behavioral approaches to children and rehearsing them, Cognitive-Behavioral Group Training can alleviate the negative symptoms of externalizing disorders, especially aggression, in students who suffer from aggression disorder. Moreover, Cognitive-Behavioral Group Training focuses on developing interpersonal skills in students which can consequently improve students' ability to express themselves more freely and resort less to aggression (Locker et al., 2008; Fix, 2013; Smyth et al., 2015; Sokhodolsky et al., 2016; Malekpour et al., 2001; Janaabadi, 2011).

Furthermore, study results indicated that Written Emotional Disclosure Training alleviated negative symptoms of externalizing disorders (e.g. aggression and hyperactivity) in students. Emotional disclosure through writing, while boosting one's immune system, improves one's physical and mental health and allows one to experience more self-control. As a result, one can successfully manage social and personal tasks. (Penne Baker, 1997; Zareh et al., 2011) Therefore, it can be suggested the findings of multiple studies confirm the effectiveness of Written Emotional Disclosure Training in alleviating the negative symptoms of physical and mental disorders (Farid et al., 2005), improving mental and physical health (Epstein et al., 2005), and enhancing working memory capacity (Cline & Bolse, 2001).

When it comes to internalizing and externalizing disorders, the results of Multivariate Analysis of Covariance (MANCOVA) indicated no significant difference between the two treatment groups that one received Cognitive-Behavioral Group Training and the other received Written Emotional Disclosure Training. Cognitive-Behavioral Group Training can improve children's train of thought and help them learn new sets of skills. As a result, students learn to change their unwelcoming behaviors and adapt to their environment more effectively. (Hallin et al., 2008) The findings of this study fall in line with the findings of previous studies, including Fathi Azar et al. (2006), Tayler et al. (2005), Sokhodosky et al. (2004), Ozabas (2011), Bahrami (2005), and Sadeqi (2002) all of which confirmed the effectiveness of Cognitive-Behavioral Group Training on alleviating the symptoms of internalizing and externalizing disorders. Moreover, Written Emotional Disclosure Training can develop one's coping skills in the face of traumatic events (Lamelli & Pronzano, 2003; Penne Baker et al., 1990) and by reducing the negative charge of one's thoughts, it can alleviate the symptoms of internalizing and externalizing disorders (Lipor, 1997; Kazovich

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et al., 2007; Garsion & Cohen, 2009). Written Emotional Disclosure Training combats inhibition or avoidance of negative emotions, which allows one to perform deeper emotional processing which affords one the ability to alter one's emotions to adapt to one's environment more effectively. (Pattery et al., 1995)

As a concluding note, it can be suggested that Written Emotional Disclosure Training and Cognitive-Behavioral Group Training alleviate the negative symptoms of internalizing and externalizing disorders in children. To conduct further research on Written Emotional Disclosure Training, this intervention method can be studied in the company with other intervention techniques. Moreover, to be able to attribute the study findings to a larger population, the effectiveness of Written Emotional Disclosure Training can be studied on teenagers. The findings of this study introduce some limitations since the study was primarily focused on elementary students and there was no chance to conduct further follow-up research with the students who received training and study their behaviors.

Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

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The studies involving human participants were reviewed and approved by ethics committee of Persian Gulf University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

All authors contributed to the study conception and design, material preparation, data collection and analysis. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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