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Mindful self-compassion intervention among young adults with a history of childhood maltreatment: Reducing psychopathological symptoms, shame, and self-criticism

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Abstract
Child maltreatment has long-term destructive effects on a person's psychological health. Therefore, it seems necessary to take interventions to reduce psychological symptoms and regulate the emotion of these people. The aim of this study was to investigate the effect of the Mindful Self-Compassion (MSC) program on reducing psychopathological symptoms, shame, and self-criticism in young adults with a history of childhood maltreatment. The research plan was a semi-experimental design with a control group. Forty-four eligible young adults in Isfahan (Iran) enrolled in an MSC course. The participants consisted of 19 males (43%) and 25 females (57%) from 18 to 25 years old. They were randomly assigned to the experimental ($N=24$) and control ($N=23$) groups. The experimental group participated in eight 2-h sessions of the MSC program**.** The results indicated that the experimental group showed a significant decrease in anxiety ($p<.001$), depression ($p<.01$), internal shame ($p<.05$), self-criticism ($p<.000$), and a significant increase in self-compassion ($p<.01$) compared to the control group in both post-test and follow-up. Also, a significant reduction was observed in external shame ($p<.001$) and stress ($p<.01$) in the experimental group immediately after the end of the intervention but there were no long-term effects at the two-month follow-up ($P>.05$). Based on the findings, it can be concluded that MCS can improve depression, anxiety, self-criticism, internal shame, and self-compassion in young adults with childhood maltreatment. Further studies with longer follow-up periods and larger sample groups with different demographics need to be conducted to confirm these findings.

Keywords Mindfulness · Self-compassion · Mindful self-compassion · Intervention · Child maltreatment

Introduction

Child maltreatment occurs to children under 18 years old and results from the negligence or abuse of their caregivers (Teicher & Parigger, 2015). It includes five aspects: sexual abuse, emotional abuse, physical abuse, emotional neglect, and physical neglect (Bernstein et al., 1997). Child maltreatment has long-term destructive effects on a person's physical and psychological health (Mercy & Saul, 2009). For example, it causes changes in the brain (Gonzalez, 2013), lack of optimal growth, and peer and socialization problems (Gallo et al., 2018). Recent research has also shown that there is a positive association between child maltreatment and emotional disorders. Children and adults who were abused as children showed more stress symptoms, anxiety and depression disorders (Gallo et al., 2018; Joss et al., 2019). On the other hand, it is estimated that more than half of patients with anxiety and depression disorders report a history of childhood maltreatment (Li et al., 2016). Also, maltreated individuals diagnosed with depression or anxiety disorder have a worse prognosis due to the earlier age of onset, more comorbidity with other disorders, greater intensity of symptoms, and higher risk of suicide (Teicher & Samson, 2013). Child maltreatment not only contributes to emotional disorders but also causes pathological self-processes like self-criticism and shame, each of which can reduce relationship satisfaction, the quality of life and increase in the risk of emotional disorders (Menke et al., 2018). More specifically, people with the experience of childhood maltreatment are prone to be highly self-critical. From a social learning perspective, children who have experienced repeated physical and emotional abuse may develop a similar critical view of

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themselves by modeling the behavior of those who abused them (Michl et al., 2015). Self-criticism is considered as a form of internal harassment that causes stress (Gilbert & Irons, 2004).

Another profound and devastating long-term outcome of childhood maltreatment is a sense of shame (Feiring & Taska, 2005). People with a history of childhood abuse are prone to experience unhealthy levels of shame due to the feeling of not being valued or as a result of the violation of personal boundaries (Fowke et al., 2012). Also, abusers manipulate children with shame-inducing sentences such as "you are bad" and "you deserve what is happening to you". These messages are among the elicitors of shame in higher growth stages (Tangney et al., 2007). Shame is a self-conscious emotion in which a person evaluates himself or herself negatively and the self is judged as being inferior and undesirable. Shame consists of two categories: external shame and internal shame. External shame is awareness that others view oneself negatively, whereas internal shame is a negative view of the self from one's own point of view (Gilbert, 1998). In addition to the relationship between each of the variables of shame, criticism, depression, anxiety, and stress with childhood maltreatment, research has also shown that these variables are highly correlated with each other. In the other words, shame and self-criticism have long histories of being associated with depression, anxiety, and stress (Castilho et al., 2017).

Several studies have been conducted in different cities of Iran to determine the prevalence of childhood maltreatment (Farnia et al., 2020; Mohammadi et al., 2014). The reported prevalence rate estimates show a wide range from 9.6% to 67.5% for physical abuse, 23.6% to 81.1% for neglect, and 17.9% to 91.1% for emotional abuse (Mohammadi et al., 2014). In western countries, the necessary facilities, detailed laws and policies to prevent child abuse are considered and implemented with a high priority. Different jurisdictions have developed their definition of child abuse to achieve their goal of keeping the children away from their abusive family and/or prosecuting a criminal charge. Despite the large number of maltreated individuals in Iran, the judiciary has not considered strict laws and facilities to reduce this number. This prevents many children from being removed from threatening and abusive environments, which in turn will increase their vulnerability to psychological problems. As a result, it seems that appropriate interventions should be considered for these people to prevent and improve psychological problems in adulthood.

Given that some of the studies have shown a relationship between childhood maltreatment and lower levels of self-compassion, it might be helpful to boost it during interventions (Joss et al., 2019). One of the potential programs that has led to change among individuals is `Mindful Self-Compassion` (MSC) (Neff & Germer, 2013). The MSC is a combination of mindfulness and compassion that especially emphasizes self-compassion (Germer & Neff, 2019). Mindfulness is a process in which a person purposefully pays attention to what is occurring at the moment. Compassion in simple terms means kindness and sympathy of individuals with themselves (Neff, 2003). Self-compassion includes three aspects: common humanity, mindfulness, and self-kindness. Self-kindness is a decision to love and treat oneself with kindness instead of ignoring pain and suffering. Common humanity is knowing that no one is perfect, and we are not alone in our sufferings. In fact, we are not alone in our shortcomings and it is shared by all living humans. Mindfulness also means paying attention to painful thoughts and feelings at the moment and considering them as thoughts and feelings that cannot be suppressed (Neff, 2003). The MSC program is designed for general public. It is a skills-building program that focuses on developing resources of mindfulness and self-compassion, and many participants in this course reported that MSC had a profound effect on their psychological well-being. It includes eight weekly sessions of 2 h each, plus an additional 4-h retreat (Germer & Neff, 2019). Although the MSC program is still in its infancy, there is increasing evidence showing its impact on increased aspects of psychological well-being. Friis et al. (2016) conducted a study of the MSC program for 61 patients with diabetes. Experimental group participants showed a significant increase in self-compassion, significant reductions in diabetes distress, depression, and HbA1C levels compared to the control group. Another study was conducted by Brooker and colleagues (2020). This study was an adaptation of the MSC intervention among 27 adults with cancer. The results showed that MSC intervention reduced depression symptoms, fear of cancer recurrence, loneliness and stress and enhanced body image satisfaction, mindfulness and self-compassion at the end of the program with small to medium size effects. Also, Delaney (2018) conducted a mixed-method pilot study of the MSC program on caregiving fatigue and resilience among nurses. Results indicated that the program improved mindfulness, resilience and compassion satisfaction while reducing secondary traumatic stress and burnout.

This research was conducted to evaluate the effect of this intervention in improving the mental health of young adults with child maltreatment. In fact, it can be said that although the variables of self-compassion and mindfulness are rooted in eastern culture, they are originally Buddhist in nature, so it is necessary to study their effectiveness in the Iranian culture that has a different religious nature. It was hypothesized that the MSC program would lead to a significant reduction in symptoms of depression, anxiety and stress, and the results would be maintained at the follow-up two months later (H_1). The second hypothesis is that the MSC intervention would significantly reduce self-criticism, internal and

external shame at the post-post and the results would be maintained at the follow-up (H_2). The third hypothesis is that the MSC training would give a significant increase in self-compassion, and this gain would be sustained at 2-month follow-up.

Method

Participants

Participants were selected from public notices. Initially, 128 young adults ages 18 to 25 years old were assessed. After evaluating, a group of 47 young adults including 21 males and 26 females were selected. Overall, 24 participants were randomly assigned to the experimental group (11 males and 13 females) and 23 participants to the control group (10 males and 13 females). The demographic characteristics of the sample are presented in Table 1.

Procedure

After the research plan was approved by the ethics committee of University of Tehran, people were invited to participate in this study by putting flyers around the city of Isfahan (Iran) and through flyers posted in the community of university, communicating the following message: "Making friends with yourself with the aim of reducing childhood injuries. The course will start in fall. As the aim of the course is evaluating the effectiveness of a mindfulness-based intervention, the course will be free." When people came to the clinic for this study, they were evaluated using Childhood Trauma Questionnaire (CTQ) to assess their experience of childhood maltreatment. Then, the training course was explained to eligible individuals. Eligibility was determined by speaking Persian, having a history of childhood maltreatment (The minimum scores for being eligible were: 7 ≤ for sexual abuse, 12 ≤ for emotional abuse, 9 ≤ for physical abuse, 9 ≤ for physical neglect, and 14 ≤ for emotional neglect), enrollment in the course for the first time, written consent from participants, having at least a diploma degree to better understand the concepts of the program, and being between 18 and 25 years old. The last criterion was considered because people under the age of 18 may still be maltreated and not mature enough. Also, the guardian approval was necessary for this age group and it can be difficult if they are maltreated. Also, people over the age of 25 might be affected by their remote memory. Of the 128 people who visited the clinic of university, 56 subjects did not meet the inclusion criteria, and of the 72 eligible subjects, 47 young adults participated in the study.

Among the 25 people who could not participate the course, the inability to match their time with the time of the course was one of the main reasons that they could not participate in this program ($n = 21$). The fear that recalling childhood memories will exacerbate their psychological symptoms was another reason that they refused to participate in this study (n = 4). Finally, 47 participants attended the introductory session and they completed DASS-21 scale to measure for symptoms of depression, anxiety, and stress. Participants also filled out LOSC, ISS, OAS and SCS questionnaires to assess their self-criticism, internal shame, external shame and self-compassion, respectively. Then, they were assigned randomly into the control (n = 23) and experimental ($n = 24$) groups. The experimental group completed the intervention in weekly sessions for 10 consecutive weeks. Two males and one female dropped out of the program due to the interference of the sessions with their other classes and the long distance to the clinic. The control group (10 males and 13 females) did not receive any intervention during this period. At the end of the last session, the questionnaires were given to the participants again. Finally, in the follow-up survey, two months later, participants were present to the clinic again to fill out the questionnaires. Of the 21 participants who completed the study, 16 participants in all sessions (76.2%), 3 participants in seven sessions (14.3%), and 2 participants in 6 sessions (9.5%) were present. This research lasted 4 months from September 1st to December 10th. (Fig. 1).

Table 1 participant demographics

Variables	Intent-to-treat (N = 47)		Completer (N = 44)	
	N	%	*N*	%
Gender				
Males	21	44.69	19	43.18
Female	26	55.31	25	56.82
Education				
Diploma	27	57.45	27	61.36
Bachelor's Degree	11	23.41	10	22.72
Master's Degree	8	17.02	6	13.64
PhD Degree	1	2.12	1	2.28

Persian Adaptation of MSC Program

Two translators who were fully acquainted with psychological concepts, especially mindfulness translated the program from English to Persian. The two translators then compared their translations and made the necessary corrections to reach a consensus. After that, two other professional translators independently back-translated the program from Persian to English. In addition, an instructor and two psychometricians examined the back-translation process and made necessary corrections. Finally, the Persian version of the MSC Intervention was created. Before performing the intervention on the

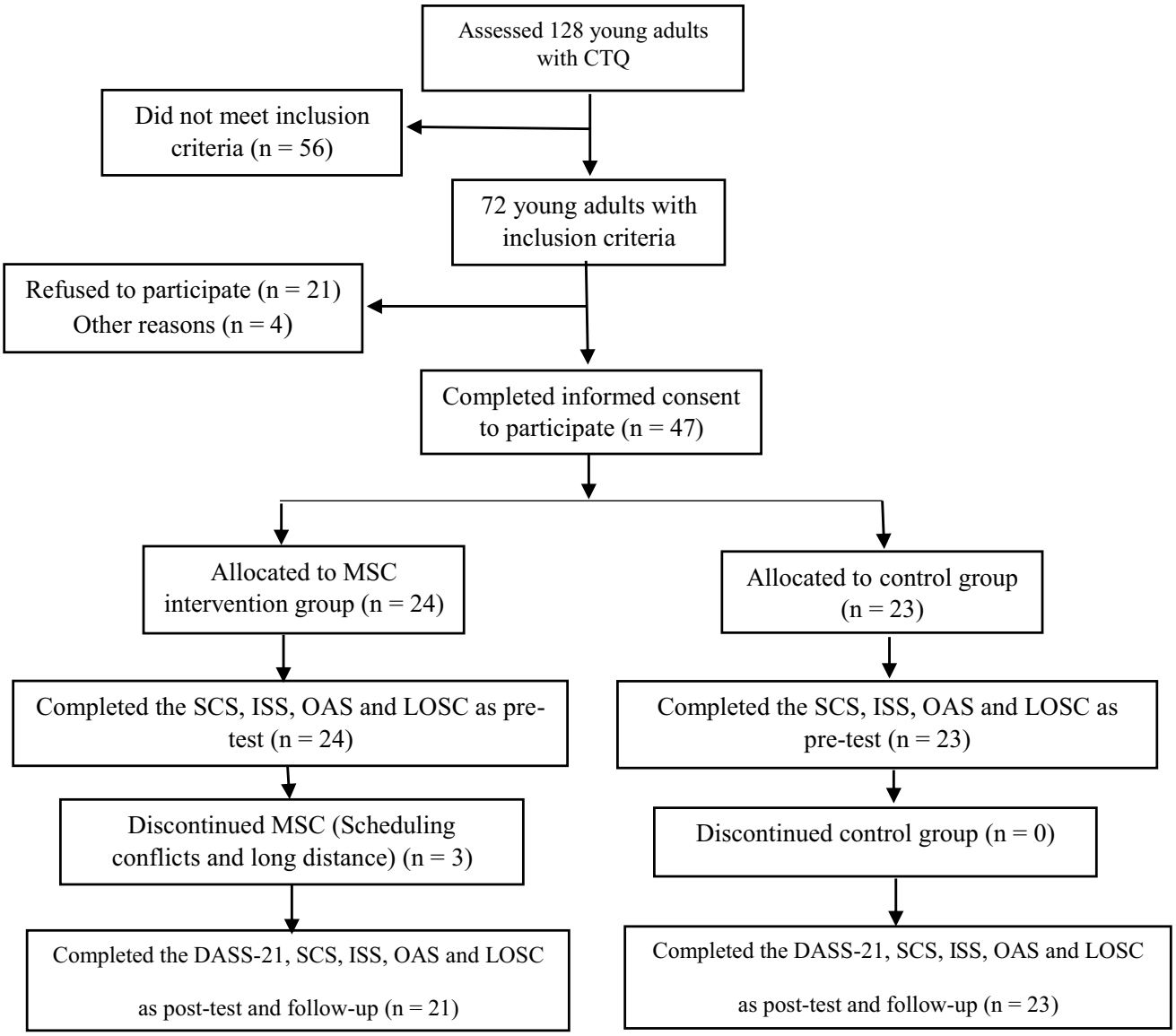

Fig. 1 Flowchart of study inclusion

main sample set of the study, it was tested on 6 subjects who were maltreated as children in a pilot study. The results of the pilot study did not indicate the need for a specific change in the content of the program. The first author (MS) received 2 year of training under the supervision of the second author (AN) to prepare for the intervention training. The second author (AN) acted as senior clinical supervisor. Also, the third author (MA) served as facilitator.

Intervention

The MSC program is a group intervention that consists of 8 weekly sessions and each session lasts 2 h. Each session focuses on different topics such as the definition of self-compassion and mindfulness. In the first session, after welcoming and explaining the rules of the sessions, self-compassion was defined and exercises such as `Soothing Touch` were presented to better understand this concept. In the second session, the main focus was on defining mindfulness and performing meditations such as `Affectionate Breathing` and `Soles of the Feet`. In the third session, `Living kindness` was defined and exercises such as `Awakening Our Hearts` and` Finding Loving-Kindness Phrases` were performed in the session. In the fourth session, the instructors explained the stages of progress in self-compassion training. After that, they explained self-criticism and how it serves the participants in achieving their goals. They also did exercises such as `Motivating Ourselves with Compassion` and `Compassionate Letter to Myself`. In the fifth session, the main focus was on finding the core values of participants

as well as finding hidden values when suffering. In the sixth session, educators taught participants how to apply the skills and exercises of mindfulness and self-compassion when they face difficult emotions and how to accept them. It also described shame as a difficult emotion and presented ways to deal with it. The focus of the seventh session was on finding challenging relationships, connection and disconnection pain and how to be compassionate to others. The main topics of the last session were compression towards yourself and others, embracing life, gratitude and savoring, and tips for maintaining practices. Between the fifth and sixth sessions, a retreat session was held in which the instructors tried to consolidate and repeat the concepts of the previous sessions by using meditations and exercises.

Measures

All participants received the Persian version of all measures. All were standardized on the Persian population.

Childhood Trauma Questionnaire (CTQ)

Bernstein and Fink (1998) prepared The Childhood Trauma Questionnaire (CTQ). This questionnaire assesses five types of traumatic experiences that occurred before the age of 18 years. Experiences include sexual, physical and emotional abuse, and physical and emotional neglect. This inventory has 28 items that are rated from 1 to 5 on a five-point Likert scale for each subscale. Internal consistency in the Iranian study conducted by Ebrahimi et al. (2014) was .97–.81 for CTQ and its subscales. For the current study, Omega reliability coefficient for sexual abuse, physical abuse, emotional abuse, physical neglect, and emotional neglect subscales, the values were .78, .81, .78, .75 and .80, respectively.

Self-Compassion Scale (SCS)

Neff (2003) developed a self-report scale called Self-Compassion Scale (SCS). This scale contains 26 items and assesses three factors of self-compassion including mindfulness vs. over identification, common humanity vs. isolation, and self- kindness vs. self-judgement. Each subscale is rated from 1 to 5 on a five-point Likert scale. In their study, Birnie et al. (2010) showed good internal consistency for total subscales ($\alpha = .77–.81$). An example item is "when something painful happens, I try to take a balanced view of the situation". In a study conducted in Iran by Azizi et al. (2013), this scale had acceptable validity and reliability. In their study, Cronbach's alpha for total items, over-identification, mindfulness, perceived isolation, common humanity, self-judgment, and self-kindness subscales were .88, .88, .90, .93, .79, and .78, respectively. In this study, Omega coefficient for total items was 0.92 and for over-identification, mindfulness, perceived isolation, common humanity, self-judgment, and self-kindness subscales, the values were .73, .72, .73, .75, .76 and .73 respectively.

Depression, Anxiety and Stress Scales (DASS-21)

Depression, Anxiety and Stress Scales (DASS-2) was developed by Lovibond and Lovibond (1995). This measure was designed to assess three dimensions of psychopathological symptoms: anxiety, depression, and stress. It has 21 items and the total score in each subscale must be multiplied by two. Also, in the Persian version of the scale, results supported validity and reliability (criterion validity and factor analysis) of the three scales of this scale. The Cronbach's alpha for subscales was .81 for depression, .73 for anxiety and .81 for stress in the Persian version of this scale (Sahebi et al., 2005). In the present study, the internal consistency was .82 for anxiety, .86 for depression, and .78 for stress based on Omega coefficient.

Internalized Shame Scale (ISS)

The Internalized Shame Scale (ISS) is a self-report test developed by Cook (1989). It is comprised of 30 items from 0 to 4 on a 5-point Likert scale. It consists of 24 items that assess the basic shame scale. Six other items in this scale assess the embedded self-esteem to correct the response set. Also, `Inferiority` and `Alienation` are two shame subscales. An example item for this scale is "my loneliness is more like emptiness". In Cook's study (1989), the correlation of self-esteem subscale with Shame, Inferiority, and Alienation was −.69, −.69 and − .58, respectively. Cronbach's alpha in the Iranian study conducted by Rajabi and Abbasi (2011) was 0.90 for the whole sample, .89 for men and .91 for women. Cronbach's alpha was .81 for ISS in the present study.

Other as Shamer Scale (OAS)

Other as Shamer Scale (OAS) has 18 items and assesses external shame in which the self is deemed unworthy, reprehensible and of low social rank (Goss et al., 1994). Items are rated from 0 to 4 on a 5-point Likert scale. In the original study, this scale showed good reliability with $\alpha = .92$. An example item of OAS is "People distance themselves from me when I make mistakes". Also, in the Persian version of the scale, results supported validity (face and content validity and construct validity) and reliability of this scale. The ordinal coefficient theta for the total score was .93 (Esbati et al., 2017). Internal consistency for OAS was .92 in the current study based on Cronbach's alpha coefficient.

Levels of Self-Criticism Scale (LOSC)

Thompson and Zuroff (2004) developed a 22-items scale that is called The Levels of Self-Criticism Scale (LOSC). This instrument consists of two subscales: Internalized Self-Criticism (ISC) and Comparative Self-Criticism (CSC). There were 10 ISC items e.g. "when I do not succeed, I find myself wondering how worthwhile I am" and 12 CSC items e.g. "being open and honest is usually the best way to keep others' respect". Items are rated from 0 to 6 on a 7-point Likert scale. In the study of Thompson and Zuroff (2004), there was a good internal consistency for these two subscales (ISC α = .87, CSC α = .81). Mousavi and Ghorbani (2006) reported acceptable validity and reliability in the Iranian sample, with Cronbach's alpha reliability coefficient of .87 and .55 for internalized self-criticism and comparative self-criticism subscales, respectively. For the current study, the Omega coefficient of this scale was .73 for internalized self-criticism and .75 for comparative self-criticism subscales.

Data analysis

To investigate the effectiveness of MSC versus control condition on the repeated measures of depression, anxiety, stress, internal and external shame, self-criticism and self-compassion, repeated measures MANOVA was used. The main interest was in the GROUP × TIME two-way interaction and the main effects of these two variables. Also, data were analyzed from the pre-intervention to the post-intervention time interval to show short-term effects and to show long-term effects. Also, data were analyzed from the pre-intervention to the next 2 months in the follow-up. Participants' data from the last assessment replaced all missing data on outcome scales. Normality and homogeneity of the data were checked. The SPSS software version 25 was used to perform data analysis.

Results

In total, 44 participants (23 participants in the control group and 21 participants in the experimental group) completed the course. At the two-month follow-up, 44 participants (21 experimental group participants and 23 control group participants) came for the final evaluation. No significant difference was shown between the two groups at pre-test ($p > .05$). The results are summarized below:

Sample Characteristics

The results indicated no significant differences in age ($t = .861$, $p = .39$), gender ($x^2 = .002$, $p = .96$) and years of education ($x^2 = 1.61$, $p = .65$) between the two groups. The descriptive findings of the research variables are given in Table 2.

Anxiety

For anxiety, no significant difference was found between the two groups ($F_{(1, 42)} = 16.78$, $p < .001$; $\acute{\eta}^2_p = .28$) for both post-test ($M = 10.19$, $SD = 5.75$) and follow-up ($M = 12.76$, $SD = 6.17$). GROUP × TIME interactions was significant from pre-test to follow-up ($F_{(1, 42)} = 10.37$, $p < .0001$, $\acute{\eta}^2_p = 0.19$). In addition, a significant main effect of time ($F_{(1, 42)} = 11.55$, $p < .01$, $\acute{\eta}^2_p = .36$) indicated that anxiety decreased from baseline to follow-up for experimental group that this reduction from pre-test to post-test as well as pre-test to follow-up was ([$M_{i\text{-}j} = 7.14$, $SE = 1.76$, $p < .01$]; [$M_{i\text{-}j} = 4.57$, $SE = 1.74$, $p < .05$]) respectively. Females showed more significant anxiety than males at pre-test ($t = 3.19$, $p < .01$), but there was not a significant difference between males and females at post-test ($t = .02$, $p = .98$) and the follow-up on anxiety ($t = .33$, $p = .73$).

Depression

There was a significant difference in depression between the two groups from pre-test to follow up ($F_{(1, 42)} = 12.22$, $p < .01$; $\acute{\eta}^2_p = .22$) showing that the experimental group experienced a larger reduction of depression than the control group. Also, the interaction of GROUP × TIME was significant ($F_{(1, 42)} = 10.80$, $p < .0001$; $\acute{\eta}^2_p = .20$). There was a main effect for time ($F_{(1, 42)} = 30.60$, $p < .0001$; $\acute{\eta}^2_p = 0.60$) on depression compared to the pre-test ($M = 18.76$, $SD = 5.88$), revealing that depression symptoms decreased significantly at post-test ($M = 10.38$, $SD = 5.74$) and the follow-up ($M = 11.61$, $SD = 5.12$) in the experimental group ([$M_{i\text{-}j} = 8.38$, $SE = 1.33$, $p < .0001$]; [$M_{i\text{-}j} = 7.14$, $SE = 1.15$, $p < .0001$]) respectively. No significant gender differences were found at post-test ($t = .56$, $p = .58$) and follow-up ($t = 1.46$, $p = .15$) on depression in the experimental group.

Stress

Results indicated a significant interaction of GROUP × TIME ($F_{(1, 42)} = 5.91$, $p < .01$; $\acute{\eta}^2_p = .12$). Also, the main effect was found for time ($F_{(1, 42)} = 8.19$, $p < .01$, $\acute{\eta}^2_p = .29$) in the experimental group. Stress reduction occurred significantly from the pre-test to post-test ($M_{i\text{-}j} = 6.85$, $SE = 1.63$, $p < .01$) but there was not a significant change for stress from the pre-test to the follow-up ($M_{i\text{-}j} = 4.76$, $SE = 1.93$, $p = .07$). A significant reduction of stress was revealed from the pre-test to post-test between the groups ($F_{(1, 42)} = 7.51$, $p < .01$; $\acute{\eta}^2_p = .15$) but no significant difference was observed in the follow-up between them from the pre-test to two months

Table 2 Descriptive statistics of pre-test, post-test and follow-up and effect sizes

variables	MSC group	*p*	Control group	*p*	Between group differences
Mean (SD)[a]	Mean (SD)[a]		Effect size (Cohen' s *d*)		
Depression					
Pre-test	18.76 (5.88)		19.13 (6.71)		.04
Post-test	10.38 (5.74)	.00001[b]	18.86 (6.71)	.99716[b]	1.38
Follow-up	11.61 (5.12)	.00001[c]	17.91 (4.91)	.80479[c]	1.39
Anxiety					
Pre-test	17.33 (8.00)		19.65 (5.31)		.35
Post-test	10.19 (5.75)	.00189[b]	21.13 (5.90)	.31384[b]	1.87
Follow-up	12.76 (6.17)	.04947[c]	18.34 (6.16)	.74131[c]	.92
Stress					
Pre-test	23.90 (4.79)		24.17 (5.71)		.05
Post-test	17.04 (8.06)	.00135[b]	25.13 (5.14)	.86657[b]	1.23
Follow-up	19.14 (8.70)	.06843[c]	22.69 (5.70)	.76325[c]	.49
Self-compassion					
Pre-test	55.47 (10.03)		53.86 (8.79)		.17
Post-test	69.28 (9.89)	.00016[b]	56.34 (10.50)	.43410[b]	1.29
Follow-up	67.19 (11.17)	.00264[c]	57.52 (7.99)	.07074[c]	1.02
Internal shame					
Pre-test	68.52 (7.59)		70.21 (9.59)		.19
Post-test	57.66 (11.33)	.00002[b]	67.17 (10.67)	.34900[b]	.88
Follow-up	61.04 (10.85)	.00066[c]	70.47 (9.05)	.99848[c]	.96
External shame					
Pre-test	43.04 (6.96)		44.17 (12.08)		.11
Post-test	33.80 (8.78)	.00012[b]	43.39 (9.15)	.99124[b]	1.08
Follow-up	38.14 (7.98)	.05731[c]	43.00 (11.02)	.97567[c]	.51
Internalized self-criticism					
Pre-test	33.52 (3.34)		34.65 (4.02)		.31
Post-test	28.28 (4.36)	.00005[b]	34.08 (4.44)	.95818[b]	1.34
Follow-up	29.00 (3.59)	.00022[c]	34.30 (4.21)	.98913[c]	1.37
Comparative self-criticism					
Pre-test	40.33 (5.31)		40.95 (5.24)		.12
Post-test	34.47 (5.09)	.00002[b]	39.13 (4.93)	.48572[b]	.94
Follow-up	35.33 (4.60)	.00007[c]	39.82 (4.60)	.81127[c]	.99

[a]standard deviation

[b]*p* value of post-test versus pre-test

[c]*p* value of follow-up versus pre-test

later ($F_{(1, 42)} = 1.74$, $p = .19$). Females showed more significant stress than males at the pre-test ($t = 2.63$, $p < .05$).

Self-compassion

There was a main effect for time ($F_{(1, 42)} = 16.44$, $p < .00001$; $\acute{\eta}^2_p = .45$) on self-compassion showing that self-compassion rose significantly from the pre-test to post-test ($M_{i\text{-}j} = 13.81$, $SE = 2.71$, $p < .001$) as well as from the pre-test to the follow-up ($M_{i\text{-}j} = 11.71$, $SE = 3.00$, $p < .01$) in the experimental group. A significant interaction of GROUP × TIME was shown ($F_{(1, 42)} = 7.79$, $p < .01$; $\acute{\eta}^2_p = .15$) for self-compassion. A significant difference was observed from the pre-test to the follow-up ($F_{(1, 42)} = 11.29$, $p < .01$; $\acute{\eta}^2_p = .21$) between the two groups revealing that the experimental group experienced a larger increase of self-compassion than the control group. There were significant gender differences at the pre-test ($t = 2.78$, $p < .5$) on self-compassion, but there was no significant gender difference at the post-test ($t = .19$, $p = .84$) and follow-up ($t = .02$, $p = .97$) in the experimental group.

Self-criticism

For internalized self-criticism, no significant difference was revealed between the groups ($F_{(1, 42)} = 19.40$, $p < .0001$; $\acute{\eta}^2_p = .31$) for both post-test ($M = 28.28$, $SD = 4.36$) and the follow-up ($M = 29.00$, $SD = 3.59$). A main effect for time ($F_{(1, 42)} = 23.01$, $p < .001$; $\acute{\eta}^2_p = .53$) showed a significant reduction of internalized self-criticism from the pre-test to post-test ($M_{i\text{-}j} = 5.23$, $SE = .94$, $p < .0001$) as well as from the pre-test to the follow-up ($M_{i\text{-}j} = 4.52$, $SE = .91$, $p < .001$) in the experimental group. GROUP × TIME interactions from the pre-test to the follow-up was significant ($F_{(1, 42)} = 7.07$, $p < .01$; $\acute{\eta}^2_p = .14$). For comparative self-criticism, a significant change was found between the two groups ($F_{(1, 42)} = 7.05$, $p < .05$; $\acute{\eta}^2_p = .14$) indicating that the experimental group experienced a larger reduction of comparative self-criticism than the control group in both the post-test ($M = 34.47$, $SD = 5.09$) and the follow-up ($M = 35.33$, $SD = 4.60$). A main effect for time ($F_{(1, 42)} = 26.56$, $p < .0001$; $\acute{\eta}^2_p = .57$) showed a significant reduction of comparative self-criticism from the pre-test to post-test ($M_{i\text{-}j} = 5.85$, $SE = .97$, $p < .0001$) as well as from the pre-test to the follow-up ($M_{i\text{-}j} = 5.00$, $SE = .91$, $p < .0001$) in the experimental group. Results also showed a significant interaction of GROUP × TIME ($F_{(1, 42)} = 4.62$, $p < .05$; $\acute{\eta}^2_p = .09$) for comparative self-criticism. There was no statistically significant difference on internalized and comparative self-criticism at the pre-test ([$t = 1.30$, $p = .20$]; [$t = .99$, $p = .33$]), post-test ([$t = .86$, $p = .40$]; [$t = .70$, $p = .48$]) and follow-up ([$t = 1.38$, $p = .18$]; [$t = 1.15$, $p = .26$]) between males and females, respectively.

Internal shame

The results showed significant effect for the time ($F_{(1, 42)} = 24.33$, $p < .0001$; $\acute{\eta}^2_p = .54$) in the experimental group, so we can say that the internal shame in the experimental group decreased significantly in the post-test ($M_{i\text{-}j} = 10.85$, $SE = 1.82$, $p < .0001$) and follow-up ($M_{i\text{-}j} = 7.47$, $SE = 1.66$, $p < .001$) compared to the baseline. Also, there was significant effects for the GROUP × TIME interaction ($F_{(1, 42)} = 6.36$, $p < .01$; $\acute{\eta}^2_p = .13$). A significant change was found between the two groups ($F_{(1, 42)} = 6.88$, $p < .05$; $\acute{\eta}^2_p = .14$) that shows that the experimental group experienced a larger reduction of internal shame than the control group in both the post-test ($M = 57.66$, $SD = 11.33$) and follow-up ($M = 61.04$, $SD = 10.85$). At the beginning of the intervention, females demonstrated more significant internal shame than males ($t = 2.80$, $p < .05$), but at the end of the intervention ($t = 1.09$, $p = .28$) and follow-up ($t = 1.38$, $p = .18$), there were no significant gender differences on internal shame.

Clinical Significance of Change The result of clinical significance of change in all measurements using Jacobson and Truax formula (1991) is given in Table 3.

External shame

A significant interaction of GROUP × TIME was revealed for external shame ($F_{(1, 42)} = 3.65$, $p < .05$; $\acute{\eta}^2_p = .08$). Also, there was also significant effect for the time in experimental group ($F_{(1, 42)} = 16.62$, $p < .001$; $\acute{\eta}^2_p$ .45). A significant external shame reduction was shown from the pre-test to post-test ($M_{i\text{-}j} = 9.23$, $SE = 1.77$, $p < .001$) but no significant change was observed for external shame from the pre-test to two months later in the follow-up ($M_{i\text{-}j} = 4.90$, $SE = 1.93$, $p = .058$). There was a significant difference between two groups from the pre-test to post-test ($F_{(1, 42)} = 5.62$, $p < .05$; $\acute{\eta}^2_p = .11$) but there was no significant difference on external shame from the pre-test to the follow-up between them ($F_{(1, 42)} = 1.68$, $p = .20$). No significant gender differences were shown at the post-test ($t = .25$, $p = .79$) and follow-up ($t = .52$, $p = .60$) on external shame in the experimental group.

Discussion

The results of the current study show that in the experimental group the mean stress scores in the post-test and the mean scores of depression and anxiety were significantly decreased in both post-test and follow-up compared to the control group after attending the Mindful Self-Compassion sessions. These findings confirm the first hypothesis of the

Table 3 Clinically reliable change analyses from pretest to posttest and follow-up

	Post-test			Follow-up		
Measure	Reliably improved	Not changed	Deteriorated	Reliably improved	Not changed	Deteriorated
Depression	71.42% (15)	28.58% (6)	0	47.62% (10)	52.38% (11)	0
Anxiety	52.38% (11)	47.62% (10)	0	42.86% (9)	52.38% (11)	4.76% (1)
Stress	61.91% (13)	33.33% (7)	4.76% (1)	33.33% (7)	61.91% (13)	4.76% (1)
Internal shame	71.42% (15)	28.58% (6)	0	52.38% (11)	42.86% (9)	4.76% (1)
External shame	80.96% (17)	19.04% (4)	0	52.38% (11)	33.33% (7)	14.29% (3)
Internalized Self-criticism	57.14% (12)	42.86% (9)	0	52.38% (11)	47.62% (10)	0
Comparative self-criticism	42.86% (9)	57.14% (12)	0	28.58% (6)	71.42% (15)	0

present study and are in the line with the findings of previous studies (except for stress in the follow-up) in which MSC reduced the symptoms of anxiety, depression, and stress (Neff & Germer, 2013; Friis et al., 2016; Delaney, 2018). The effectiveness of MSC on the depression of participants with childhood maltreatment can be explained by noting that the self-kindness component of this program will enable individuals to learn to forgive themselves for their mistakes and accept themselves as they are. In this way, self-kindness generally leads to a way of being happier in life. Participants in group discussions believed that their experiences such as challenges and insecurities are unique to them whereas the common humanity component, which is part of self-compassion, contradicts this belief and helps them to understand that they are not alone in their sufferings (Neff et al., 2007). Self-compassion in general can reduce people's experience of negative emotions by interrupting their rumination cycle about negative events and getting rid of judgments that lead to their psychological distress (Ehret et al., 2015). Also, self-compassion by promoting emotion regulation improves mental health (Inwood and Ferrari, 2018). Being mindful also makes individuals more objective and in times of depression and anxiety they are able to examine situations from different perspectives rather than focusing on negative aspects. Mindfulness also helps to reduce the reaction to stressful or negative situations and leads to greater satisfaction and the ability to respond to stress because it helps the brain's neuroplasticity and alters brain function (Barnes et al., 2007).

According to the transactional stress theory, stress is experienced when one does not have sufficient internal resources to deal with stressors (Lazarus & Folkman, 1984). Perhaps the reason for the inconsistency in the results of stress variable in both post-test and follow-up is that continuous attendance in the class, expressing participants' problems in sessions and trying to cope with stressors by reminding self-compassion, and being mindful in all moments has led to a significant reduction in stress at the end of the course (post-test). But after six weeks and a decrease in the exercises of the program, participants needed more or longer doses of mindfulness and compassion or even additional trainings such as problem-focused coping tailored to their needs and problems and receiving social support. They were then able to show a significant decrease in this variable over time by creating enough internal and external resources (Runtz & Schallow, 1997).

The second hypothesis of the research (excluding external shame in the follow-up) was also confirmed. In explaining the effectiveness of MSC on self-criticism and shame, we can state that shame and self-criticism are two main indicators of over-activity in the threat system (Johnson and O'Brien, 2013). MSC has long-lasting effects on this system and reduces its over-activity and subsequently enhances the activity of the soothing system. So, it will reduce internal shame and will raise one's self-criticism threshold (Johnson & O'Brien, 2013). Also, the results showed that at the follow-up, external shame in the experimental group did not significantly decrease compared to the control group. This can be explained by noting that generally people who have been abused have a high level of concern about how they look in the eyes of others (Vidal & Petrak, 2007). This can lead to fundamental problems such as shame about their body and appearance (Andrews et al., 2002) and excessive level of self-consciousness in relation to others (Lewis, 1987). Because of their exaggeration in the importance of what has been said, this short-term group intervention may not be able to have long-term effects in reducing external shame. Finally, the third hypothesis was confirmed that this finding is consistent with previous studies (Neff & Germer, 2013) in which the MSC has been able to positively increase compassion.

In the follow-up session, instructors asked about the amount of time participants spent practicing each week. A totol of 62% of participants said they practiced an average of four hours a week, 24% practiced an average of 3 h per week, and 14% practiced an average of 2 h per week.

Limitations and Future Research Directions

In addition to creating a compassionate mental framework for dealing with suffering, MSC also increases psychological resistance which has positive effects on reducing psychological problems. As a result, it can reduce symptoms of depression, anxiety, self-criticism, and internal shame and increase self-compassion. The current work has the following advantages compared to similar studies: 1) Participants from both sexes. 2) A follow-up period. 3) A control group that enabled researchers to compare the results of two groups and participants were assigned to these groups randomly. 4) Researchers in the current study standardized the MSC program according to the culture of Iranian society for the first time. 5) Finally, a therapeutic implication of the present study is that cultivating mindfulness and self-compassion can decrease the severity of negative emotions in individuals with a history of childhood maltreatment. However, the results should be used with caution for the following reasons: 1) Measurement method mainly depends on the subjective report of individuals, which has some limitations such as social approval effect and common method bias. 2) The current study had only one control group and the effectiveness of this program was not compared to other interventions. 3) This study was conducted only in one city so the results might not generalize to other groups of population. 4) There was a small sample size in this study. 5) Although participants in the present study were asked to imagine different scenes and hear a kind voice towards themselves, the instructions

were short and it is not clear whether participants actually imagined or not. 6) In this study, the unique effect of each session on the dependent variables was not measured. Given these limitations, it is recommended to use longer follow-up periods to investigate the continued effects of the intervention. Additionally, it is advisable to conduct similar research studies with larger samples and different demographic and cultural characteristics to increase the generalizability of the results. Also, future studies could include assessments such as psychophysiological or behavioral markers to control some of the limitations of self-reports. Further research is needed to investigate the impact of individual differences at the baseline on treatment outcomes. It is suggested that future studies incorporate qualitative measures to better understand the psychopathological problems in the pre-test and to find out how compassionate thinking and responding change over time. It is also suggested that in future studies the unique effect of each session on the dependent variables be investigated. Finally, further research studies need to be conducted to study the effectiveness of the MSC program on positive variables in addition to psychological and behavioral problems such as feeling of kindness in adults with the history of childhood maltreatment.

Data Availability The data supporting the findings of this study are available in the supplementary materials.

Declarations

Ethical Approve The study received ethical approval from the Ethic Committee of the Tehran University Faculty of Psychology and Education. All procedures performed in studies involving human participants were accordance with the ethical standards of the institutional and/or national research committee with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Animal Rights This article does not contain any studies with animals performed by any of the authors.

Conflict of Interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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