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Designing A Program Of Group Psychodrama Interventions Based On Maladaptive Schemas And Evaluating Its Effects On Adults' Early Maladaptive Schemas

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Abstract

Group schema therapy is considered the newest phase of schema therapy development. The bold role of group activities in psychodrama treatments has been acknowledged as an advantage of this type of treatment. Therefore, combining these two can be an effective step in promoting the effectiveness of interventions. This study aimed to design a program of group psychodrama interventions based on maladaptive schemas for adults. This was approached in two steps. First, a group intervention program with eight sessions was designed based on psychodrama techniques and schema therapy content. Second, efficacy of the designed program was investigated. A semi-experimental study was conducted based on a pretest-posttest design with a control group. The statistical population was composed of employees of knowledge enterprises in Tehran, Iran (N: 35). The 3rd version of the short-form Young schema questionnaire (YSQ-S3, 2005) was used as research instrument to collect the required

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data. Data analysis was conducted by multivariate analysis of covariance (MANCOVA). The results showed significant differences between control and experimental groups in all maladaptive schema components after the intervention. According to the findings, psychodrama intervention based on schema therapy provides sufficient effectiveness ($p < 0.05$) for improving adults' maladaptive schemas.

Keywords: *group schema therapy, psychodrama, intervention.*

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Introduction

By definition, maladaptive schemas are structures or pervasive patterns that influence broad psychological diversity dimensions such as cognition, behaviors, and emotions (Younan, Farrell, & May, 2017). One of the features of these schemas is sustainability, on which basis the person usually exhibits adaptive thinking, feeling, and acting. Moreover, artificial satisfaction and peaceful feeling, as results of compliance with the schemas, can trap people in unhealthy and destructive behavioral habits (Yakın, Grasman, & Arntz, 2020). Therefore, it seems necessary to study maladaptive schemas more comprehensively to prevent disorders and improve mental health.

Schema therapy was first introduced by an American psychologist, Jeffery Young, in the 1990s (Young, Klosko, & Weishaar, 2003). The cornerstones of this approach are such major concepts as early maladaptive schemas, modes, coping responses, and coping styles (Rafaeli, Bernstein, & Young, 2011). The growth and flourishing of this approach went through different stages that led to several versions of it (Vreeswijk, Broersen, & Nadort, 2012). Mostly credited to the Farrell and Shaw's studies, the group schema therapy (GST) is greatly based on the schema therapy (Bastick, Verhagen, Zarbock, Farrell, Wilde, Arntz, & Lee, 2018). Meanwhile, due to the specific benefits of group treatment in general, and definite bright sides of performing schema therapy in a group format, Young described GST as the third phase of schema therapy improvement

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(Farrell & Shaw, 2012). The impact of GST has been proven in many studies, a summary of which is indicated below.

Koppers, Van, Peen, and Dekker (2020) examined the impact of GST on patients with personality disorders (N: 194) through a pretest-posttest design using the symptom checklist 90-revised (SCL-90-R; Derogatis, 1994), the Young schema questionnaire (YSQ; Young & Brown, 1994), and the schema mode inventory (SMI; Lobbestael et al., 2010) as research instruments. Measurements were conducted in the beginning, during, at the end of, and upon three months following the treatment. Upon 60 weekly sessions of GST, the results at treatment termination (d: 0.65) and upon three-month follow-up (d: 0.61) showed effectiveness of this therapy for the reduction of personality disorder symptoms considering a 95% confidence interval (CI) .

Younan, Farrell, and May (2017) analyzed the feasibility of an intervention program for adults suffering from complex trauma in the form of 60 hours of GST along with four hours of individual schema therapy over a period of four weeks. Besides, the study was aimed to measure the effect of the program on psychiatric symptoms, self-esteem, quality of life, and schema modes (N: 36). Based on a pretest-posttest design, this study included a three-month follow-up stage, with the required data collected via schema mode inventory (SMI; Young et al., 2007), WHO quality of life (QoL; WHO, 1996), and brief symptom inventory (BSI; Derogatis and Melisaratos, 1983) as the research instruments. According to the findings, all studied dependent variables improved both at the treatment termination and upon the three-month follow-up period. Four themes were found by quantitative analysis of the program, including (1) explanation of the emotional reaction in a mode language, (2) fostering connection, (3) activation of

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emotions on demand for a change, and (4) enabling understanding, self-reliance, and instills hope for change. In conclusion, the four-week GST program was found feasible for disorders associated with complex trauma.

Reiss, Leib, Arntz, Shaw, and Farrell (2013) evaluated the effectiveness of three independent uncontrolled pilot studies that combined ST with GST in patients suffering from borderline personality disorders (BPD) (N: 92). The study was based upon a pretest-posttest design and involved a ten-week follow-up only in pilot 3. Data collection was practiced via either borderline and global functioning symptoms or global severity of psychiatric symptoms. The results showed a significant reduction in BPD symptoms and global severity of psychopathology, with the size of effect ranging from d: 2.84 to d: 0.43.

Farrell, Shaw, and Webber (2009) reported a randomized controlled study where the effectiveness of GST in the treatment of BPD was assessed. Participants were randomized to only treatment-as-usual (TAU) individual psychotherapy (N:16) and schema-focused therapy (SFT) group plus TAU (N: 16). According to the findings, symptoms of BPD and global psychotic reduced, and global function improved significantly in participants who received SFT. Besides, after finishing up the period of group SFT, 94% of participants no longer suffered from the BPD symptoms ($p < 0.001$).

Overall, advantages of GST can be summarized into three factors, including universality (the group members learn to share their problems with others), cohesiveness (the sense of belonging and acceptance among group members), and corrective recapitulation of the primary family experience (to accelerate limited re-parenting and experimental learning). In addition, the ease of performing particular

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techniques like imagination and role-playing reinforces the other positive sides of GST, since it creates a warm atmosphere and boosts interaction and mutual support (Dickhaut & Arntz, 2014).

Therapeutic schema therapy techniques have been established at three levels, namely cognitive, behavioral, and experimental, together constituting a basic pillar of this approach (Farrell, Reiss, & Shaw, 2014). However, the experimental type has drawn Young's attention dramatically (Vreeswijk et al., 2012), and there are many reasons for that. The experimental techniques not only have the potential for emotional-level interventions but also can target, thanks to their non-verbal nature, early experiences that affect the formation of maladaptive schemas. Such experiences are thought to emerge in absence of verbal abilities and then coded in the form of visual images, bodily sensations, and emotions whose effects can be realized only in a non-verbal fashion (Rafaeli et al., 2011). It is noteworthy that the integral role of experience-based interventions in schema-focused therapy has been demonstrated in neurobiological research. For instance, Carnabucci and Ciotola (2013) explained this by evoking both the right and left brain halves along with Wernicke and Broca's areas, resulting in greater activation of memory (as cited in Doomen, 2017). Accordingly, with a variety of experimental techniques, psychodrama can be seen as a way of entailed factor to achieve the goals of schema therapy in the experimental field, especially at the emotional intervention level.

As a therapeutic method, psychodrama was founded by Jacob Levy Moreno, a Romanian-American physician, psychotherapist, sociologist, and philosopher in the first half of the 20th century. This form of therapy was developed in line with improvisational

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theater, group psychotherapy, and social assessment. Meanwhile, by including such concepts as creativity, improvisation, confrontation, and mental imagery, it went from theory to practice and treatment (Von Ameln & Beker-Ebel, 2020). According to Moreno's definition, psychodrama is a therapeutic method for discovering psychic reality through action. Based on this definition, two fundamental elements of psychodrama include inner experience and physical representation. Thus, psychodrama enables people to experience life events in the framework of activities in the here and now. As a result, change or modification of mental experiences about important people or prominent life events occurs in a tangible and understandable way (Blatner, 2000).

Aside from the significant role of psychodrama in experimental schema therapy techniques, similarities in particular aspects (*e.g.*, the number of concepts, principles, and major effectuation theories or approaches between these two therapies) make it more feasible to use them in combination with one another. Concerning shared concepts, the creativity, imagination, flexibility, confrontation, and early experiences are some noticeable examples that follow the emphasis on the importance of role-playing, types of games, and imagination practice (Farrell et al., 2014; Blatner, 2000). On the other hand, the effectiveness of psychoanalysis and interpersonal relationships theories in both schema therapy and psychodrama can be acknowledged as confluences of these two approaches. Deep searching into early childhood memories and experiences, exploring clues, and extracting the roots of psychological problems by taking into account the effective and important people in the patient’s life are essential and constructive components that ripple in both approaches. Finally, the underlying goals of these approaches are remarkable as both seek to achieve cognitive and

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emotional changes and modifications to behavioral patterns (Von Ameln & Becker-Ebel, 2020; Young et al., 2003). The similar aspects of schema therapy and psychodrama are summarized in Table 1. At the other end of the spectrum, the differences between schema therapy and psychodrama might provide a suitable opportunity to benefit from both of them. While psychodrama is an action-based approach with a clear structure (Jennings, Cattanach, Mitchell, Chesner, & Meldrum, 2005), schema therapy is an approach with precise content and definite components. Consequently, psychodramatic techniques related to schema therapy content can be used for intervention purposes. On this account, integration of schema therapy and psychodrama in the context of group interventions may provide an appropriate framework for re-experiencing traumas in light of psychodramatic techniques. Accordingly, all elements of this integrated framework are established to visualize traumatic events, reconstruct them, and correct or reduce the influence of maladaptive schemas. Thus, the present study aims to design a program of group psychodrama interventions based on maladaptive schemas and evaluate its effectiveness in adults' early maladaptive schemas.

Intervention programs are an integral part of interventions since they provide a comprehensive package of certain components, techniques, and systematic and logical contents. These programs can make the interventions more regulated and predictable. However, to ensure that a particular intervention program brings success, its elements must be established on strong foundations. In the present study, this issue is explained along two dimensions, namely culture and target society.

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According to cultural psychology, culture can have a constant effect on the behaviors, feelings, and thoughts of people in different communities (Khamseh, 2007). An obvious example would be the impact of culture on the perception of concepts like “dependence”, which meaning differs between collectivist and individualist societies (Triandis & Suh, 2002). In consequence, the differences in these cognitive and behavioral foundations between dissimilar cultures must be noticed in the process of diagnosis and treatment. This issue is also significant in the schema therapy where therapeutic strategies are initially defined at cognitive and experimental levels and then escalated to behavioral level, in all of which the culture is a critical factor to consider. Hence, designing an intervention program based on culture and its requirements is a substantial step in this study.

Over and above the cultural factor, limiting the target society to adults (25 to 45-year-olds) is considered an effective control variable to make the program more optimal. This was done for two main reasons: (1) acknowledging the importance of the adulthood as a developmental stage in the Levinson’s theory, and (2) expanding the statistical population and hence external credibility of the findings. Based on the Levinson’s theory, adulthood is divided into several stages. Early adulthood includes the age range of 17 to 45. According to this theory, adulthood is a challenging stage in which people experience important life choices and build their life structure accordingly (Aktu & İlhan, 2017). Furthermore, adults constitute the largest yet most active portion of the general population in a society. According to a report by the Plan and Budget Organization of Iran (2017), %73.36 of Iran's population is shaped by people aged 25 to

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45. Accordingly, the intervention program in this study was specifically designed for adults of 25-45 in age.

Based on a comprehensive literature review, two associated studies were found. Doomen (2017) examined schema-focused drama therapy on cluster C personality disorders (PD). He adopted a pretest-posttest design with a single group (N: 8), where the required data was collected through the mode observation scale (MOS) and the schema mode inventory (SMI). Findings showed effectiveness of this therapy in expressing emotions, reducing destructive coping, and increasing a healthy state in cluster C PD, with the size of effects ranging from d: 0.70 to d: 0.75 ($p < 0.001$). In another piece of work, Ghasemi, Yazdkhasti, and Arizi (2016) investigated the effects of psychodrama on early maladaptive schemas and behavioral-emotional problems. They utilized a pretest-posttest design with a control group, and the statistical population was composed of all high school girls with one parent in Isfahan, Iran (N: 30). According to the findings, psychodrama interventions significantly affect the mentioned dependent variables ($p < 0.001$). Regardless of deficient evidence, the present study differs from related studies in diverse dimensions. Two distinctive features of the present study include the consideration of a wide statistical population including a group of healthy subjects rather than limiting the population to people with certain disorders or conditions, and designing a culture-tailored intervention program.

Primary research objective

The main objective of the present research is to prepare a group psychodrama intervention program based on maladaptive schemas.

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Secondary research objectives

Aside from the primary research objective, this study seeks to satisfy the following secondary objectives:

1. Formulating psychodramatic techniques with schema therapy capabilities
2. Designing implementation patterns for the formulated intervention program according to the socio-cultural context
3. Determining the effect of the designed intervention program on improving early maladaptive schemas

Research questions

1. What are the components of the program of group psychodrama interventions based on maladaptive schemas?
2. Does the program of group psychodrama interventions based on maladaptive schemas have a significant content validity?
3. Is the program of group psychodrama interventions based on maladaptive schemas effective in reducing early maladaptive schemas?

Research hypotheses

1. The program of group psychodrama interventions based on maladaptive schemas can effectively reduce the disconnection and rejection schemas.
2. The program of group psychodrama interventions based on maladaptive schemas can effectively reduce impaired autonomy and performance schemas.
3. The program of group psychodrama interventions based on maladaptive schemas can effectively reduce impaired limits schemas.

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4. The program of group psychodrama interventions based on maladaptive schemas can effectively reduce other-directedness schemas.
5. The program of group psychodrama interventions based on maladaptive schemas can effectively reduce over-vigilance and inhibition schemas.

Research methodology

Study design

Given the research objectives, this is a qualitative-quantitative study. It begins with designing the intervention program and then proceeds to measuring its effectiveness through a randomized clinical trial with a pretest-posttest design.

Qualitative study

To design the program of group psychodrama interventions based on maladaptive schemas, the following six steps were followed:

1. To evaluate the necessity of this research, a comprehensive literature review was accomplished. For this purpose, electronic databases of the Iranian research including Scientific Information Database (SID), Iranian Information and Documentation Center (IranDoc), and Databank of Iranian Biomedical Journals (IranMedex) were searched. Afterwards, the main international electronic databases, including Scopus, Google Scholar, PubMed, and PsycINFO were further searched.

   In order to develop a draft version of the intervention program, the techniques of GST and psychodrama along with the related intervention program were determined and extracted. Accordingly, the following keywords were searched in the mentioned electronic databases: “technique”, “exercise”, “program”, “package”, “session”, “intervention”, “psychodrama”, and

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"GST". The search was limited to the published works during 2012 - 2021. Relevant books were further reviewed to expand the research coverage. This was continued until data saturation. As a result, 13 journal articles and five books elaborating on the GST were identified, out of which a total of 21 and 54 GST techniques could be extracted, respectively. When it came to psychodrama therapy, 12 journal articles and five books were identified, out of which 37 and 131 techniques could be extracted, respectively. These made up a total of 60 GST and 168 psychodramatic techniques, respectively (some techniques were shared between the relevant articles and books, and hence combined into a single method). Notably, the extraction of psychodrama techniques was implemented by considering mixing psychodramatic techniques with other drama-based therapies. Thus, the following criteria were determined for source selection:

- Sources written by experts in psychodrama; The term expert here refers to the pioneers of psychodrama, psychologists with degrees in psychodrama, and psychologists with experience in the field of psychodrama. Thus, among the books, those written by famous psychodrama professionals were included for technique extraction, as Zerka et al.'s and Blatner's books were reviewed despite their publication date being outside the specified time frame.

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- Sources that are specifically about psychodrama, has the psychodrama term used in them clearly, and included at least one psychodramatic technique.
- Sources in which the term psychodrama is not used directly but related to the subject of psychodrama and have at least one prominent psychodramatic technique.

As a result of the review of the psychodrama literature, two sources were found that provide the classification of psychodramatic techniques: Cruz et al.'s (2018) systematic review and Blatner's book (2000). According to Cruz et al.'s study, psychodramatic techniques are divided into three main categories: core, secondary, and other techniques or actions. Meanwhile, based on Blatner's classification, psychodramatic techniques can be placed in either of four categories: basic techniques, different scenes, conflict resolution techniques, and warm-up techniques. Blatner also mentions the general methods of improvisation training in psychodrama sessions, which can be a practical guideline for extracting psychodynamic techniques. Therefore, the following criteria were considered for selecting techniques or activities:

- Techniques or activities that are related to the principles and goals of the psychodrama approach or those that can be adapted to the basic concepts of psychodrama.
- Techniques or activities that qualify for one of the categories provided by Cruz et al. (2018) or Blatner (2000).

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2. The extracted techniques were categorized in Table 2 through Table 5.
3. A program of group psychodrama interventions based on maladaptive schemas was designed. Accordingly, extracted GST techniques were analyzed in terms of adaptability to psychodrama techniques. Likewise, psychodramatic techniques were assessed in relation to the schema therapy, and feasibility of performing them in sessions was evaluated. The most significant criterion for interpreting and analyzing the techniques was the ability to make therapeutic changes into GST techniques, and schema analysis capacities of the psychodramatic techniques were determined. In all stages, sociocultural factors were taken into consideration. Additionally, the logical structure of the sessions concerning the extracted GST and psychodramatic intervention programs was codified. Eventually, an 8-session intervention program was designed, with each session relying on specific modes and schemas and involving particular techniques and assignments. The designed intervention program is detailed in Table 6.
4. To evaluate the cont ent validity, the designed intervention program was provided to 8 specialists in the fields of schema therapy and psychodrama. Upon explaining the purpose and principles of the intervention program to the experts, they were asked to evaluate different sessions in terms of their necessity and relevance to the program in the form of 6-point Likert scale.
5. To evaluate the face validity, a pilot study was conducted among 8 participants and the focus group interview was directed after finishing the sessions. Subjects of the interview revolved around three main topics: (A)

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optimization of future performance, (B) perception of the participant's views towards the sessions, and (C) creation of interactions between participant's opinions. The interview procedures were clarified to the members by explaining the number of questions (*i.e.*, 4 questions) and the duration of discussing each question (*i.e.*, 10 minutes). Participants were assured that the information obtained from the interview would be kept confidential and only used to promote the intervention program. Furthermore, information gathering methods (*i.e.*, note-taking and voice recording) were clearly stated. It was emphasized to the participants that they could express their opinions freely and fearlessly. Questions were about the effectiveness of sessions, the most effective part of sessions, and strengths/flaws of the sessions.

Quantitative study

Participants

The statistical population included all 25-45 year-old adults working in knowledge enterprises in Tehran, Iran, out of whom a sample of 70 eligible employees in terms of inclusion criteria were selected.

Inclusion criteria

Three major inclusion criteria were considered:

A. Age: concerning the purpose of this study, we focused on 25 - 45-year-old adults.
B. Employment status: employees of knowledge enterprises in Tehran were the subjects of this study.
C. Salary: The minimum allowable per-month salary was set to 45,000,000 IRR (this threshold was set as the median of income in

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Iran in 2020, as per the latest report by the Iran Ministry of Cooperatives, Labor and Social Welfare (2021) for a three-person household in Tehran).

Non-inclusion criteria

Psychological disorders, such as depression or anxiety were considered as non-inclusion criteria in this study.

Exclusion criteria

The group members were prevented from participating or observing any adverse event or any unintended damage during the intervention sessions. Possible reluctance of taking part in the intervention sessions was another obstruction criterion. Figure 1 shows the study flowchart. Noteworthily, the intervention part of the study was registered as a clinical trial on the Iranian Registry of Clinical Trials (IRCT) on April 30th, 2022, under the registration code IRCT20220124053814N1. Further, the Research Ethics Committee of the Faculty of Psychology and Education approved the study by issuing a license with the registration number IR.UT.PSYEDU.REC.1400.028.

Data collection instruments

Young schema questionnaire (3rd version, short form)

The Young schema questionnaire (YSQ-S3, 2005) was used in this work. This questionnaire is a self-report tool with 90 items that can measure 18 schemas in five domains, as determined by Young. Each item is scored based on a six-point Likert scale. The domains and their schemas are shown in Table 7. Ghiasi, Molavi, Neshatdost, and Salavati (2011) investigated the factor structure of YSQ-S3. Based on their findings, Cronbach's alpha was estimated at 0.94 and specificity and sensitivity were evaluated to range in 0.57 - 0.73 and 51.20 - 64.60, respectively. In addition, the

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concurrent validity score between the dysfunctional attitude scale and YSQ-S3 was calculated at 0.64.

Sample size

According to Borg and Gall (1979), any experimental study in relevant fields requires a sample of size no smaller than 15 (as cited in Cohen, Manion, and Morrison, 2007). In the present study, considering possible drop-outs, the sample size was set greater than twice as the minimum recommended size for each group (N: 70, *i.e.*, two groups of 35 individuals).

Randomization

Once the list of candidates was prepared, they were invited to an introduction session to demonstrate the nature of the intervention program, principles, requirements, structure, process, and all other conditions. Besides, respecting the candidates' rights, not only anticipated achievements of the intervention but also possible unwanted consequences were drawn clearly, and the volunteers became aware of the researchers' commitments. The subjects were further told about basic concepts of the schema therapy, to the extent required to provide them with adequate insight into the interventions and make them able to knowledgeably decide on whether to take part in the program. After all, 70 well-decided volunteers were selected for the intervention program, completed informed consent forms, and asked to complete the YSQ-3S. The participants were then assigned to the experimental and control groups based on permuted block randomization.

Intervention

After randomization, the intervention program was conducted with the experimental group in 8 four-hour sessions with three main stages, namely warm-up, main activities,

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and closure. Each session revolved around particular modes, schemas, and related assignments that were defined at the end of the sessions. These assignments were given to the group members to prepare themselves for the next session by practicing.

Two expert psychologists conducted each intervention session, one with plenty of experience in psychodrama and group psychology, and the other one being a psychology graduate. This was done to more carefully implement and monitor the proposed methodology.

The tasks of each psychologist were determined before the session. A psychologist was in charge of the central performance, and the other carefully monitored the participants' states so that none of the participants would stop from engaging with the group process. During and after each session, the two psychologists exchanged opinions and proceeded with the following steps according to the results.

Even though the control group did not receive the intervention program, they were promised to be in the future intervention program if they wished. The YSQ-S3 was conducted on both experimental and control groups at the end of the interventions. The SPIRIT[1] diagram is shown in Figure 2.

Blinding

Concerning the nature, structure, and objectives of the designed intervention program, blinding was not feasible during the intervention sessions since the foundation of the sessions was based on the education, insight, and awareness of changes and developments that were necessary for both group members and the therapist. However, in the data analysis stage, blinding was employed as this stage was performed by a statistical analyst who was unaware of the study objects.

[1] Standard Protocol Items: Recommendations for Intervention Trials

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Statistical analysis

Data analysis was conducted both qualitatively and quantitatively. The qualitative analysis dealt with the content and face validities, while the quantitative analysis went for descriptive and inferential investigations.

Findings of qualitative analysis

Content validity

For exploring the content validity, the designed program of group psychodrama interventions based on maladaptive schemas along with a checklist of investigating the propriety of relevance and necessity of the sessions were provided to 8 experts in the fields of schema therapy and psychodrama. The specialists were then asked to rate their agreement on a 6-point Likert scale. Table 8 shows the findings. As specified by the experts, the suitability of the relevance and necessity indicators turned out to range in 4 - 4.62 and 4.12 - 4.5, respectively. While the highest relevance score was obtained for the first session (M: 4.62), the seventh session (M: 4) was determined as the least relevant. In terms of necessity, the first and fourth sessions (M: 4.12) were found to be the most necessary ones while the eighth session (M: 4.5) was identified as the least necessary. Averaging over all sessions, the relevance and necessity scores turned out to range in 3.87 - 4.62 and 4 - 4.62, respectively.

Face validity

Face validity was investigated by performing a pilot study among 8 participants. At the intervention termination, participants were invited to a focus group interview, where they were asked to express their opinions about the sessions freely. The major discussion was revolved around four questions asking about reasons for effectiveness of

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the session, the most effective part of the session, and strengths and flaws of the session. Table 9 reports the collected information.

Findings of quantitative analysis

At the very first step, the descriptive analysis was conducted. Accordingly, for all five domains and their involved schemas, mean (M) and standard deviation (SD) were calculated in both experimental and control groups in the pretest and posttest stages. Findings (Table 10) showed that, in the experimental group, after the intervention, the means of all maladaptive schemas decreased compared to the pretest condition.

In order to investigate the effectiveness of the program of group psychodrama interventions based on maladaptive schemas, multivariate analysis of variation (MANCOVA) was utilized in the SPSS 24 software. Before proceeding to MANCOVA, assumptions were examined for all five hypotheses of the research. Accordingly, the equality of the variance-covariance matrices was assessed by the Box's M test, and non-statistically significant outcomes were found, as follows:

- Hypothesis 1 [Box's M = 39.753, F(15, 18039.714) = 2.437, $p > 0.05$]
- Hypothesis 2 [Box's M = 34.153, F(10, 21418.201) = 3.194, $p > 0.05$]
- Hypothesis 3 [Box's M = 1.313, F(3, 831236.836) =*0*.423, $p > 0.05$]
- Hypothesis 4 [Box's M = 3.794, F(6, 32446.584) =*0*.602, $p > 0.05$]
- Hypothesis 5 [Box's M = 8.168, F(10, 21418.201) =*0*.764, $p > 0.05$]

The above results showed that the variance-covariance matrices are equal (Table 11). Also, Levene's test revealed that all maladaptive schemas met the assumption of homogeneity of variance ($p > 0.05$). The normality of the distribution of all pretest-posttest subscales was examined by the Kolmogorov–Smirnov (K-S) test and the fact

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that all independent variables exceeded the significance level ($p > 0.05$) confirmed this assumption. Therefore, the findings confirmed all assumptions. After that, MANCOVA was performed.

The results of applying multivariate tests were found to be statistically significant.

Hypothesis 1 [Wilks' lambda = 0.181, F (5, 58) = 52.770, $p < 0.001$]

Hypothesis 2 [Wilks' lambda = 0.387, F (4, 60) = 23.720, $p < 0.001$]

Hypothesis 3 [Wilks' lambda = 0.439, F (2, 64) = 40.922, $p < 0.001$]

Hypothesis 4 [Wilks' lambda = 0.266, F (3, 62) = 57.147, $p < 0.001$]

Hypothesis 5 [Wilks' lambda = 0.384, F (4, 60) = 24.039, $p < 0.001$]

Therefore, the null hypothesis was rejected (Table 12). Between-subject effects were tested and the results are reported in Table 13, indicating a significant difference between participants of experimental and control groups in terms of maladaptive schemas. The fact that the experimental group exhibited higher mean scores than the control group in all components revealed that the program of group psychodrama interventions based on maladaptive schemas had significantly affected all maladaptive schemas in adults (aged 25 to 45).

Discussion

The primary objective of the present study was to prepare a program of group psychodrama interventions based on maladaptive schemas. Secondary objectives included exploring the content and structure of the intervention program and its effectiveness on the maladaptive schemas in adults of 25 to 45 in age. Data analysis was carried out both qualitatively and quantitatively. Findings indicated sufficient content and face validities of the designed intervention program. Moreover, the results confirmed the research hypotheses, as it turned out that the designed intervention

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program imposed significant effects on reducing all 18 schemas. These findings were in agreement with those reported by Ghasemi et al. (2016) and Doomen (2017). However, the unique features of the proposed program of group psychodrama interventions based on maladaptive schemas included the integration of GST with psychodrama, culture-tailored content, and extensive statistical population including a group of healthy subjects rather than limiting it to people with certain disorders or conditions.

Given the components, techniques, and structure of the program of group psychodrama interventions based on maladaptive schemas, our observations during the implementation of this program can be briefly interpreted as follows: concerning the educational part of the program and the cognitive dimension, increased awareness at cognitive, behavioral, and emotional levels was evident between the experimental group members. This awareness got root to the deep insight of personality features and exposure to real experiences. Considering the psychodrama aspect of the intervention program, effect of this recognition should be considered far more influential than a space in which only dialogue dominates. Also, performing the experimental techniques led participants toward more creativity, spontaneity, and imagination ability. Stimulating the emotional level of the schemas in participants was the distinctive advantage of mixing the psychodramatic techniques with the schema-based interventions, since the psychodramatic techniques enabling non-verbal expression made the group members capable of achieving their complex emotions that take root in the pre-linguistic language development. Generally, observations during the implementation stage illustrated the expected desirable outcomes of the intervention

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program. Regarding the results and our observations, the main capabilities of the designed intervention program are as follows:

1. Training the components of schema therapy including early maladaptive schemas, modes, and coping styles.
2. Getting insight into the origins of dysfunctional thoughts, emotions, and behaviors along with the ability to explore traumatic early experiences.
3. Training to meet the unmet needs of one's childhood and their impact on his/her current life.
4. Training to deal with unpleasant or harmful experiences and problems healthily, and problem-solving skills.
5. Strengthening the ability to imagine undesirable experiences by getting beyond the verbal expression and attainment to the emotional level.
6. Training creativity and spontaneity.

The present study suffered from several limitations. Results of the present study are only applicable to group interventions rather than individual interventions. Results of the qualitative study led to identification of many GSTs and psychodramatic techniques, out which an eventual selection was done by the researchers; although the researchers' decisions were supposed to be shaped by theories and scientific criteria, different attitudes might follow diverse theories and criteria. Regarding the age criterion for designing the intervention program, possible outputs of implementing the program for different age groups are uncertain. Furthermore, considering the statistical population, we suggest designing a similar intervention program for different populations like people with psychological disorders, etc. According to the researchers' experiences,

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particular experimental techniques are not applicable to Iranian culture; therefore, further research is necessary to design matching techniques and culture-tailored interventions.

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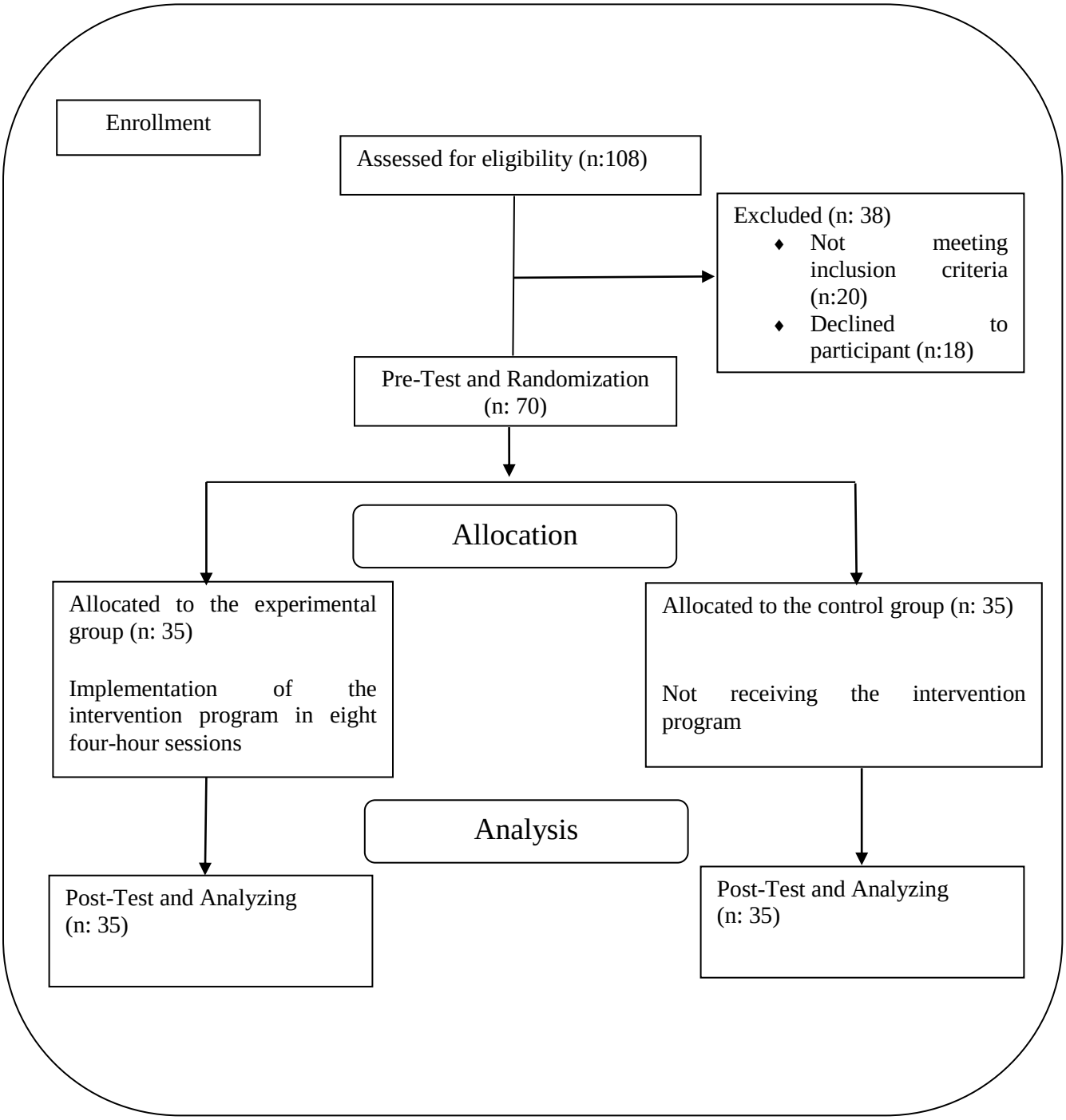
Tables and Figures



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	Study Period										
	Enrollment	Allocation	After the allocation								Close-out
Time Point	Before the intervention		WK 1	WK 2	WK 3	WK 4	WK 5	WK 6	WK 7	WK 8	After the intervention
Enrollment											
Introduction session	X										
Eligibility Screen	X										
Informed Consent	X										
	X										
Performing the YSQ- S3 (Pre-test) Random allocation		X									
Interventions:											
Experimental group			←	—	—	—	—	—	—	→	
Control group											
Assessment: The YSQ-S3 (Post-test)											X

Figure 2: SPIRIT chart of the enrolments and assessments during randomized controlled trials. The "X" refers to what is done during the study period. Abbreviation: WK: week.

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Table 1: Similarities between schema therapy and psychodrama.

Approaches	The role of the therapist	Principles	Common concept	Common approaches and theories	Application of psychodrama in schema therapy
Schema therapy and psychodrama	Being active Navigation Flexibility Analysis Creativity	Making changes at the cognitive, emotional, and behavioral levels	Imagination Creativity Early experiences Flexibility confrontation	Extraction of traumatic experiences and their roots refer to psychoanalysis Analysis of early experiences related to interpersonal relationships of clients referred to Attachment theory and interpersonal relationships theories	Experimental interventions especially at the emotional level

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Table 2: Extracted psychodrama techniques from journal articles.

Technique No.	Technique title	sources
1	Social atom	Cruz, Sales, Alves & Moita (2018) Treadwell & Dartnell (2017) McVEA, Gow & Lowe (2011)
2	Mediator objects	Pires, Rojas, Sales &Vieira (2021) Cruz, Sales, Alves & Moita (2018)
3	Role-play	Pires, Rojas, Sales &Vieira (2021) Haghshenas & Rezaei (2020) Cruz, Sales, Alves & Moita (2018) Skolnik (2017) Treadwell & Dartnell (2017) Chae & Kim (2017) Moore, Andersen-Warren, & Kirk (2017) Pourrezaian (2016) McVEA, Gow & Lowe (2011) Tauvon (2010) Kipper & Ritchie (2003)
4	Role training	Cruz, Sales, Alves & Moita (2018)
5	Mirror	Cruz, Sales, Alves & Moita (2018) Treadwell & Dartnell (2017) Pourrezaian (2016) Zerka, Moreno & Beacon (1959)
6	Symbolic representation	Cruz, Sales, Alves & Moita (2018) Zerka, Moreno & Beacon (1959)
7	Games	Pires, Rojas, Sales &Vieira (2021) Haghshenas & Rezaei (2020)
8	Bookmarks in my mind	Chae & Kim (2017)
9	Maximization	Tauvon (2010)
10	Sculpture	Cruz, Sales, Alves & Moita (2018) Tauvon (2010)
11	Self-realization	Treadwell & Dartnell (2017) Zerka, Moreno & Beacon (1959)
12	Future projection	Treadwell & Dartnell (2017)
13	Soliloquy	Cruz, Sales, Alves & Moita (2018) Treadwell & Dartnell (2017) Zerka, Moreno & Beacon (1959)
14	Therapeutic soliloquy	Zerka, Moreno & Beacon (1959)
15	Projective techniques	Moore, Andersen-Warren, & Kirk (2017)
16	Spontaneous improvisations	Zerka, Moreno & Beacon (1959)
17	Sociometry	Cruz, Sales, Alves & Moita (2018) Treadwell & Dartnell (2017)
18	Action sociometry	Cruz, Sales, Alves & Moita (2018)
19	Double	Cruz, Sales, Alves & Moita (2018) Treadwell & Dartnell (2017) Pourrezaian (2016) Kipper & Ritchie (2003) Zerka, Moreno & Beacon (1959)
20	Multiple-double/Multiple ego	Treadwell & Dartnell (2017) Zerka, Moreno & Beacon (1959)
21	Story making	Moore, Andersen-Warren, & Kirk (2017)
22	Resistance interpolation	Cruz, Sales, Alves & Moita (2018)
23	Auxiliary world	Zerka, Moreno & Beacon (1959)
24	Dance	Haghshenas & Rezaei (2020)

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Technique No.	Technique title	sources
25	Delusive psychodrama	Treadwell & Dartnell (2017) Zerka, Moreno & Beacon (1959)
26	Analytical psychotherapy role-play	Zerka, Moreno & Beacon (1959)
27	Dreamwork	Treadwell & Dartnell (2017) Zerka, Moreno & Beacon (1959)
28	Magic trashcan	Chae & Kim (2017)
29	Three-chair	Chae & Kim (2017)
30	Different voices	Chae & Kim (2017)
31	Empty chair/Auxiliary chair	Haghshenas & Rezaei (2020) Cruz, Sales, Alves & Moita (2018) Treadwell & Dartnell (2017)
32	Concretization	Cruz, Sales, Alves & Moita (2018)
33	Magic shop	Haghshenas & Rezaei (2020) Treadwell & Dartnell (2017)
34	Amplification	Cruz, Sales, Alves & Moita (2018)
35	Mask	Pires, Rojas, Sales &Vieira (2021)
36	Introduction from another role	Treadwell & Dartnell (2017) Zerka, Moreno & Beacon (1959)
37	Role-reversal	Cruz, Sales, Alves & Moita (2018) Skolnik (2017) Treadwell & Dartnell (2017) Tauvon (2010) Kipper & Ritchie (2003) Zerka, Moreno & Beacon (1959)

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Table 3: Extracted psychodrama techniques from the books.

Technique No.	Technique title	sources
1	Social atom	Von Ameln & Becker-Ebel (2020) Gershoni (2003), Blatner (2000)
2	Corrective social atom	Gershoni (2003)
3	Autodrama	Blatner (2000)
4	Replay	Blatner (2000)
5	Non-verbal communication	Blatner (1996)
6	Dream metaphors	Gershoni (2003)
7	Shared secrets	Blatner (2000)
8	Mediator objects	Leveton (2001)
9	Exaggeration	Blatner (1996)
10	The freezing technique, Freeze or Stop	Von Ameln & Becker-Ebel (2020) Gershoni (2003)
11	Enactment	Blatner (2000) Blatner (1996)
12	Role-play	Von Ameln & Becker-Ebel (2020) Blatner (2000)
13	Role training	Blatner (2000) Blatner (1996)
14	Ideal future	Gershoni (2003)
15	Mirror	Von Ameln & Becker-Ebel (2020) Gershoni (2003) Blatner (2000) Blatner (1996)
16	Talk to the place where you are	Leveton (2001)
17	Videotape playback	Blatner (1996)
18	Feedback	Leveton (2001)
19	Intermediate feedback from the auxiliary egos	Von Ameln & Becker-Ebel (2020)
20	Intermediate feedback from the group	Von Ameln & Becker-Ebel (2020) Blatner (1996)
21	Childhood play	Leveton (2001)
22	Games	Blatner (2000)
23	Maximization	Von Ameln & Becker-Ebel (2020)
24	Passing an imaginary object	Leveton (2001)
25	Pantomime	Von Ameln & Becker-Ebel (2020)
26	Stomping	Leveton (2001)
27	Ball-toss	Leveton (2001)
28	Behind the back	Blatner (2000) Blatner (1996)
29	Sculpture	Von Ameln & Becker-Ebel (2020)
30	Family sculptures	Leveton (2001)
31	Commercials	Leveton (2001)
32	Analyzing life roles	Gershoni (2003)
33	Future image	Gershoni (2003) Blatner (2000) Blatner (1996)
34	Imagination	Von Ameln & Becker-Ebel (2020)
35	Imagery as a warm-up to art	Gershoni (2003)
36	Variations	Gershoni (2003)
37	Monolog	Von Ameln & Becker-Ebel (2020)

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Technique No.	Technique title	sources
		Gershoni (2003) Blatner (2000) Blatner (1996)
38	Excuses	Gershoni (2003)
39	Collective role reversal	Von Ameln & Becker-Ebel (2020)
40	Sociometry	Von Ameln & Becker-Ebel (2020) Gershoni (2003) Blatner (2000) Blatner (1996)
41	Projective sociometry	Gershoni (2003)
42	Sociometry in action	Von Ameln & Becker-Ebel (2020)
43	Visual sociometry	Gershoni (2003)
44	Personification of emotions	Von Ameln & Becker-Ebel (2020)
45	Asides	Blatner (2000) Blatner (1996)
46	Double	Von Ameln & Becker-Ebel (2020) Gershoni (2003) Blatner (2000) Blatner (1996)
47	Exploratory double	Von Ameln & Becker-Ebel (2020)
48	The double as a counselor	Leveton (2001)
49	Questioning double	Von Ameln & Becker-Ebel (2020)
50	Interpretive double	Von Ameln & Becker-Ebel (2020)
51	Physicalizing the double	Leveton (2001)
52	The collective double	Leveton (2001)
53	The supportive double	Von Ameln & Becker-Ebel (2020)
54	Doubling of self-observations	Von Ameln & Becker-Ebel (2020)
55	The empassioned double	Leveton (2001)
56	The stubborn double	Leveton (2001)
57	The humorous double	Leveton (2001)
58	The neutral double	Leveton (2001)
59	Persuasive double	Von Ameln & Becker-Ebel (2020)
60	Paradoxical double	Von Ameln & Becker-Ebel (2020)
61	The oppositional double	Leveton (2001)
62	Advisory double	Von Ameln & Becker-Ebel (2020)
63	Strengthening double	Von Ameln & Becker-Ebel (2020)
64	Empathetic, Supportive double	Von Ameln & Becker-Ebel (2020)
65	Multidimensional double	Von Ameln & Becker-Ebel (2020) Blatner (2000) Blatner (1996)
66	Rearranging the room	Leveton (2001)
67	Movement	Von Ameln & Becker-Ebel (2020) Blatner (2000)
68	Slow motion	Von Ameln & Becker-Ebel (2020)
69	The blind walk	Leveton (2001)
70	Simple movement	Leveton (2001)
71	Fortunately-unfortunately	Leveton (2001)
72	Guided fantasy	Blatner (1996)
73	Family fantasy	Leveton (2001)
74	Storytelling	Leveton (2001)

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Technique No.	Technique title	sources
75	Helper world	Blatner (2000)
76	Future dialogue	Gershoni (2003)
77	Dialogues	Leveton (2001)
78	Walk and talk	Gershoni (2003)
79	Dance	Von Ameln & Becker-Ebel (2020) Blatner (2000)
80	Colors	Leveton (2001)
81	living newspaper	Von Ameln & Becker-Ebel (2020)
82	Turn your back	Von Ameln & Becker-Ebel (2020)
83	Dreamwork	Von Ameln & Becker-Ebel (2020) Blatner (2000)
84	Rhythms	Leveton (2001)
85	life is easy…life is hard	Leveton (2001)
86	Ego building	Blatner (1996)
87	Then and now	Leveton (2001)
88	Time travel	Leveton (2001)
89	The sociogram	Leveton (2001)
90	Three-chair	Gershoni (2003)
91	Questions	Leveton (2001)
92	The six-character	Leveton (2001)
93	Crib scene	Blatner (2000)
94	The staged conflict	Gershoni (2003)
95	Death scene	Blatner (2000)
96	Sound-ball	Leveton (2001)
97	The empty chair	Gershoni (2003) Leveton (2001) Blatner (2000)
98	Treasure trunk	Leveton (2001)
99	Spectrogram	Gershoni (2003) Blatner (2000) Blatner (1996)
100	Memory photo	Von Ameln & Becker-Ebel (2020)
101	Objectify	Blatner (1996)
102	Magic shop	Leveton (2001) Blatner (2000) Blatner (1996)
103	Amplification	Blatner (2000) Blatner (1996)
104	Hand squeeze	Leveton (2001)
105	The portal activity	Gershoni (2003)
106	Walking	Leveton (2001)
107	Working with creative media	Von Ameln & Becker-Ebel (2020)
108	Different uses	Leveton (2001)
109	The tussle	Gershoni (2003)
110	Next step	Leveton (2001)
111	The logogram	Gershoni (2003)
112	Mask	Leveton (2001), Blatner (2000)
113	Mask exercises in couples group	Leveton (2001)
114	Exercise for the use of a universal mask	Leveton (2001)

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Technique No.	Technique title	sources
115	Machines	Leveton (2001)
116	locus nascendi	Von Ameln & Becker-Ebel (2020)
117	Structured negotiation	Blatner (2000)
118	Time-lapse	Von Ameln & Becker-Ebel (2020)
119	Another path	Leveton (2001)
120	Introduced by another role	Von Ameln & Becker-Ebel (2020) Leveton (2001)
121	Nonverbal conversations	Leveton (2001)
122	The safe place	Von Ameln & Becker-Ebel (2020)
123	Attributions	Von Ameln & Becker-Ebel (2020)
124	Monodrama	Blatner (1996)
125	Writing with the unaccustomed hand	Leveton (2001)
126	Breaking in	Blatner (2000)
127	Role-reversal	Von Ameln & Becker-Ebel (2020) Gershoni (2003) Leveton (2001) Blatner (2000) Blatner (1996)
128	Nonverbal gift-giving	Leveton (2001)
129	Chorus	Blatner (1996)
130	learning new roles/Role training exercise	Gershoni (2003)
131	The inner helpers	Von Ameln & Becker-Ebel (2020)

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Table 4: Extracted group schema therapy techniques from the articles.

Technique No.	Technique title	sources
1	Communication by wool yarn	Hilden, Rosenström, Karila, Elokorpi, Torpo, Arajärvi & Isometsä (2020)
2	The advantages and disadvantages evaluation of coping styles	Saffarinia & Azizi (2019) Piri, Hosseinaei, Asadi & Shariatnia (2019) Dehestani, Azizi & Mahdavi (2018) Zargham hajebi, Mirbagheri & paknezhad (2018) Rahimaghaee, hatamipour, ashoori (2017) Hashemi & Darvishzadeh (2016) Tajikzade, Zare, Naziri & Afshari (2015)
3	The advantages and disadvantages of schema evaluation	Piri, Hosseinaei, Asadi & Shariatnia (2019)
4	Role-play	Shahabi & Sanagouye-Moharer (2018) Rahimaghaee, hatamipour, ashoori (2017) Hashemi & Darvishzadeh (2016) Goli, Hedayat, Dehghan & Hosseini-Shorabe (2016) Panahali, Shafiabadi, Navabinejad & Nornnipoor (2013)
5	The experiment of schema validity	Piri, Hosseinaei, Asadi & Shariatnia (2019) Saffarinia & Azizi (2019) Zargham hajebi, Mirbagheri & paknezhad (2018) Rahimaghaee, hatamipour, ashoori (2017) Hashemi & Darvishzadeh (2016) Ghaderi, Kalantari & Mehrabi (2016) Goli, Hedayat, Dehghan & Hosseini-Shorabe (2016) Tajikzade, Zare, Naziri & Afshari (2015) Panahali, Shafiabadi, Navabinejad & Nornnipoor (2013)
6	Imagery rescripting	Hilden, Rosenström, Karila, Elokorpi, Torpo, Arajärvi & Isometsä (2020)
7	Devil's defender game	Panahali, Shafiabadi, Navabinejad & Nornnipoor (2013)
8	Examining memories	Zargham hajebi, Mirbagheri & paknezhad (2018).
9	Imagination	Dehestani, Azizi & Mahdavi (2018) Zargham hajebi, Mirbagheri & paknezhad (2018) Dehestani, Azizi & Mahdavi (2018) Ghaderi, Kalantari & Mehrabi (2016) Goli, Hedayat, Dehghan & Hosseini-Shorabe (2016), Tajikzade, Zare, Nazir& Afshari (2015) Panahali, Shafiabadi, Navabinejad & Nornnipoor (2013)
10	The new definition of supporting evidence	Dehestani, Azizi & Mahdavi (2018) Zargham hajebi, Mirbagheri & paknezhad (2018) Zargham hajebi, Mirbagheri & paknezhad (2018) Rahimaghaee, hatamipour, ashoori (2017) Ghaderi, Kalantari & Mehrabi (2016) Goli, Hedayat, Dehghan & Hosseini-Shorabe (2016) Tajikzade, Zare, Naziri & Afshari (2015) Panahali, Shafiabadi, Navabinejad & Nornnipoor (2013)
11	Practicing with bedsheet	Hilden, Rosenström, Karila, Elokorpi, Torpo, Arajärvi & Isometsä (2020)
12	Card making	Hilden, Rosenström, Karila, Elokorpi, Torpo, Arajärvi

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Technique No.	Technique title	sources
		& Isometsä (2020)
13	Cognitive distortions Identification	Saffarinia & Azizi (2019)
14	The empty chair	Hilden, Rosenström, Karila, Elokorpi, Torpo, Arajärvi & Isometsä (2020) Piri, Hosseinaei, Asadi & Shariatnia (2019) Shahabi & Sanagouye-Moharer (2018) Tajikzade, Zare, Naziri & Afshari (2015)
15	Training cards of the schemas	Piri, Hosseinaei, Asadi & Shariatnia (2019) Saffarinia & Azizi (2019) Shahabi & Sanagouye-Moharer (2018) Ghaderi, Kalantari & Mehrabi (2016) Hashemi & Darvishzadeh (2016) Tajikzade, Zare, Naziri & Afshari (2015) Panahali, Shafiabadi, Navabinejad & Nornnipoor (2013)
16	Emotion cards	Hilden, Rosenström, Karila, Elokorpi, Torpo, Arajärvi & Isometsä (2020)
17	A dialogue between unhealthy and healthy modes	Zargham hajebi, Mirbagheri & paknezhad (2018)
18	A dialogue between unhealthy and healthy schema aspects	Piri, Hosseinaei, Asadi & Shariatnia (2019) Saffarinia & Azizi (2019) Shahabi & Sanagouye-Moharer (2018) Dehestani, Azizi & Mahdavi (2018) Ghaderi, Kalantari & Mehrabi (2016) Tajikzade, Zare, Naziri & Afshari (2015) Panahali, Shafiabadi, Navabinejad & Nornnipoor (2013)
19	Imaginary dialogue	Saffarinia & Azizi (2019) Piri, Hosseinaei, Asadi & Shariatnia (2019) Dehestani, Azizi & Mahdavi (2018) Rahimaghaee, hatamipour, ashoori (2017) Hashemi & Darvishzadeh (2016) Ghaderi, Kalantari & Mehrabi (2016) Goli, Hedayat, Dehghan & Hosseini-Shorabe (2016) Tajikzade, Zare, Naziri & Afshari (2015) Panahali, Shafiabadi, Navabinejad & Nornnipoor (2013)
20	Imaginary job interview	Hilden, Rosenström, Karila, Elokorpi, Torpo, Arajärvi & Isometsä (2020)
21	letter writing	Hilden, Rosenström, Karila, Elokorpi, Torpo, Arajärvi & Isometsä (2020) Piri, Hosseinaei, Asadi & Shariatnia (2019) Saffarinia & Azizi (2019) Shahabi & Sanagouye-Moharer (2018) Dehestani, Azizi & Mahdavi (2018) Zargham hajebi, Mirbagheri & paknezhad (2018) Ghaderi, Kalantari & Mehrabi (2016) Tajikzade, Zare, Naziri & Afshari (2015) Panahali, Shafiabadi, Navabinejad & Nornnipoor (2013)

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Table 5: Extracted group schema therapy techniques from the books.

Technique No.	Technique title	sources
1	Protective army	Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
2	Role-play	Heath & Startup (2020) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
3	Mode dialogue/ Multiple mode dialogue	Heath & Startup (2020) Farrell & Shaw (2018) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
4	Balloon pop	Heath & Startup (2020) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
5	Imagining ice cream/ The visit to the ice cream store	Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012)
6	Cognitive restructuring	Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
7	Imagery rescripting	Heath & Startup (2020) Farrell & Shaw (2018) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
8	A sound game	Heath & Startup (2020) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
9	The face game	Heath & Startup (2020) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
10	Stomping balloons	Heath & Startup (2020) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
11	A safe house project/ Happy child mode dream house imagery /Building a safe house	Heath & Startup (2020) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
12	Back to back	Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
13	Imagery to access the vulnerable child mode	Farrell & Shaw (2018) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
14	Therapist vulnerable child mode imagery	Farrell & Shaw (2018), Farrell & Shaw (2012)
15	little child on the street image	Farrell & Shaw (2012).
16	The safe place imagery	Heath & Startup (2020) Farrell & Shaw (2018) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
17	Safety bubble	Heath & Startup (2020)

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Technique No.	Technique title	sources
		Farrell & Shaw (2018) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012)
18	Imagery exercise to banish the dysfunctional parent mode	Farrell, Reiss & Shaw (2014)
19	Individual imagery change work that includes the group	Farrell & Shaw (2012)
20	Fun with the modes	Farrell, Reiss & Shaw (2014)
21	Fun for the happy child mode in imagery exercises/ The toy store	Heath & Startup (2020) Farrell & Shaw (2018) Farrell, Reiss & Shaw (2014)
22	pro and con exercises	Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012)
23	Grounding exercises	Farrell & Shaw (2018) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
24	The birth of the modes	Heath & Startup (2020)
25	Treasure box/keepsakes, memories, and connection boxes/ Vulnerable child box	Heath & Startup (2020) Farrell & Shaw (2018) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
26	What are you feeling? (game or the color game)	Farrell & Shaw (2012)
27	Who is stronger?	Farrell & Shaw (2012)
28	Melodic Movements	Farrell & Shaw (2012)
29	Reading poetry	Farrell, Reiss & Shaw (2014), Farrell & Shaw (2012)
30	Identity bracelet	Heath & Startup (2020) Farrell & Shaw (2018) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
31	Mode dialogue that includes a task	Heath & Startup (2020)
32	Historical multiple-mode dialogues	Heath & Startup (2020)
33	Experiencing detached protector mode	Vreeswijk, Broersen & Schurink (2012)
34	What's my mode?	Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012)
35	Construct an angry child mode image	Farrell, Reiss & Shaw (2014)
36		
37	Connecting web exercise (1)	Farrell & Shaw (2018) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012)
38	Connecting web exercise (2) or group transitional object	Farrell & Shaw (2018) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012)
39	Connecting web exercise (3)	Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012)
40	Connecting web exercise for	Farrell & Shaw (2012)

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Technique No.	Technique title	sources
	detached protector mode	
41	Smashing eggs	Farrell, Reiss & Shaw (2014)
42	Identifying cognitive distortions	Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
43	The punitive parent face	Farrell, Reiss & Shaw (2014)
44	The punitive parent mode effigy	Heath & Startup (2020) Farrell & Shaw (2018) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
45	Good parent script	Farrell & Shaw (2018) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012)
46	Tug-of-war	Heath & Startup (2020) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
47	Flashcard	Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012
48	Walking with pause and presence	Farrell, Reiss & Shaw (2014)
49	Balloon work	Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012)
50	Full chair work	Farrell & Shaw (2012)
51	Paper toss	Farrell, Reiss & Shaw (2014)
52	The winter Olympics	Heath & Startup (2020) Farrell & Shaw (2012) Vreeswijk, Broersen & Schurink (2012)
53	Drawing	Farrell & Shaw (2018) Farrell, Reiss & Shaw (2014) Farrell & Shaw (2012)
54	Group mascot	Farrell, Reiss & Shaw (2014)

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Table 6: Brief content of the group psychodrama interventions based on maladaptive schemas.

Sessions	Content
Introduction	Getting familiar with the type of program, objectives, principles, requirements, and structure of sessions Introducing and explaining the basic concepts of schema therapy, group therapy, and psychodrama Creating group cohesion and security by creating dialogue circles and encouraging participants to take part in the interacting conversation Conveying a sense of belonging with the group and experiencing cohesiveness through my-tribe technique
One	Warm-up (30 m): Training to recognize and name emotions and feelings (face game), Creating a sense of security (Safety bubble) Main activity (60 min): Understanding emotions by role-playing and portraying emotions (Face game), Making a connection with vulnerable child mode (Imagination of lost child) and happy child mode (Happy child box) Closure (45 min): Conversation and sharing experiences, Explanation of assignments Assignment: Worksheet of the vulnerable child mode, Preparing objects for the happy child box
Two	Warm-up (60 min): Reviewing the previous session assignment, developing interpersonal relationship skills, Raising the level of concentration and physical awareness (Hands), Creating a sense of security (The safe place image), Making the recognition of emotions deeper by connecting emotions to colors (The color of emotions) Main activity (120 min): Understanding and recognizing the punitive parent mode (Punishment experiment), The importance of self-imposed beliefs toward individuals, events, and the world (Life is easy…Life is hard), Depicting self-imposed security (Protective army), Creating a sense of security (Back to a safe place), Withdrawing desires, views, and experiences from the unconscious (Imagery with animal metaphors), New mental formulation focusing on important people in life (Writing and performance of an important person of life) Closure (60 min): Conversation and sharing experiences, Explanation of assignments Assignment: Protective Army, Worksheet of the recognition of the modes' experiences, Awareness of the vulnerable child mode
Three	Warm-up (45 min): Reviewing the previous session assignment, Recalling emotions to the body (Sculpture game) Main activity (120 min): Nurturing courage (That's enough, role-playing of a vulnerable child and an angry child as its protector techniques), Expressing emotions explicitly (Balloon pop, and Sound game techniques), Creating a sense of security (Back to a safe place) Closure (60 min): Conversation and sharing experiences, Explanation of assignments Assignment: Worksheet of awareness of the angry child mode
Four	Warm-up (30 min): Reviewing the previous session assignment, Recalling the happy child mode (Travel to an ice cream city), Fostering the ability of understand another's perspective and flexibility (Mirror ego) Main activity (150 min): Recalling and rebuilding traumatic experiences by nurturing courage in the context of group support (Recreating memory and Improvisational monologue techniques), Nurturing the ability of self-expression without fear and freely (Controversy) Closure (60 min): Conversation and sharing experiences, Explanation of assignments Assignment: Being happy with an important person in my life, Worksheet of Cognitive distortion, Worksheet of training the happy child mode
Five	Warm-up (30 min): Reviewing the previous session assignment, Practicing awareness of emotions and bodily sensations (Mental awareness) Main activity (150 min): Transferring the concept of group interactions and describing the importance of the individual role in contribution, expanding or limiting it (Yarn game), Practicing recognition, awareness, diagnosis, and improving skills of controlling modes by role-playing and discussing them (Dialogue between chairs and Three-chair techniques), Confronting the disconnection and rejection schema by nurturing courage, recognizing the current mode, and the ability of describing and portraying it to others (Performing poetry in the group) Closure (60 min): Conversation and sharing experiences, Explanation of assignments Assignment: Worksheet of cognitive distortion, Worksheet of recognition of dysfunctional parent, Diagram of my life

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Sessions	Content
Six	Warm-up (45 min): Reviewing the previous session assignment, Awareness of bodily sensations, and achieving non-verbal experiences (Non-verbal communication), Emotional release and building trust in the group (Here and Now), Awareness of physical experiences, possible reasons for accepting or rejecting physical experiences, and restructuring these experiences in the here and now (Physical memory) Main activity (150 min): Fostering the ability to recognize one's own mode and another in different situations by playing the role of a mode and guessing desired mode (What's my mode?), Awareness of the impact of another and a group on one's modes (Cross sentences), Nurturing the ability of recognizing oneself from another perspective (Me from other's view), Identifying the expected self, and determining the goals and perspectives (The imagery of my ending, and Drawing and discussing the dream house techniques) Closure (45 min): Conversation and sharing experiences, Explanation of assignments Assignment: Worksheet of behavioral pattern- breaking with the help of healthy adult mode, Worksheet of the healthy adult mode during a week
Seven	Warm-up (45 min): Reviewing the previous session assignment, describing emotions by metaphor of nature elements with the aim of nurturing the power of expression and increasing the ability of creativity (Nature metaphors), Practicing improvisation through a group game (Law-based dialogue by throwing a ball) Main activity (150 min): The group role-play about schemas based on an improvisation scenario along with discussing roles and dialogues (Improvised role-plying based on the fundamental beliefs of schemas), Expressing emotions and feelings towards different people and events of life with the aim of training and increasing empathy skills (Empathetic chair), Improvisation practice (Three-minute monologue, and Childhood game) Closure (45 min): Conversation and sharing experiences, Explanation of assignments Assignment: Childhood game, Experience of another life
Eight	Warm-up (45 min): Reviewing the previous session assignment, fostering self-esteem, verbal abilities and creative thinking (advertising technique), Strengthening improvisational dialogue and teaching the importance of one's role and responsibility in how developing conversations and interpersonal communications (Dialogue of possibilities) Main activity (150 min): Behavioral pattern-breaking, rebuilding life structures and new valuations based on the learnings and experiences gained from the intervention program (Writing and performing a dramatic condition based on schema therapy, performing an empty chair and I techniques), Summing up and determining the values gained from the intervention program and making a reminder for implementing what learned, in the real-life (Identity bracelet) Closure (45 min): Conversation and sharing experiences, Explanation of assignments Assignment: worksheet of long-term strategies to strengthen the healthy adult mode, worksheet of strategies to strengthen the happy child mode

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Table 7: The domains and schemas of the Young schema questionnaire (YSQ-S3, 2005).

Domains' Row	Domains	Schemas' Row	Schemas
1	Disconnection and Rejection	1	Abandonment. Instability
		2	Mistrust. Abuse
		3	Emotional deprivation
		4	Defectiveness. Shame
		5	Social isolation. alienation
2	Impaired Autonomy and Performance	6	Failure
		7	Dependence. Incompetence
		8	Vulnerability to harm or illness
		9	Undeveloped Self. Enmeshment
3	Impaired limits	10	Superiority
		11	Self-discipline. Insufficient self-control
4	Other-directedness	12	Subjugation
		13	Self-sacrifice
		14	Approval-seeking. Recognition seeking
5	Over vigilance. Inhibition	15	Negativity. pessimism
		16	Emotional inhibition
		17	Unrelenting Standards. Hyper criticalness
		18	Punitiveness

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Table 8: Findings on the content validity of the designed intervention program.

	Relation										Necessity								
judges	Sessions								Mean	Judges	Sessions								Mean
	1	2	3	4	5	6	7	8			1	2	3	4	5	6	7	8	
1	5	4	5	4	5	4	4	5	4.5	1	5	5	4	5	4	5	4	5	4.62
2	4	3	4	3	4	4	5	4	3.87	2	5	4	5	4	3	4	3	5	4.12
3	4	5	5	5	4	5	4	5	4.62	3	5	4	3	4	4	5	4	5	4.25
4	4	4	4	5	4	4	3	4	4	4	4	5	4	3	5	3	5	4	4.12
5	3	5	4	5	3	4	5	5	4.25	5	5	3	4	5	4	4	4	5	4.25
6	5	4	5	4	5	5	4	5	4.62	6	4	5	5	4	4	5	5	4	4.5
7	5	3	4	3	5	4	3	4	3.87	7	4	4	5	5	4	4	3	3	4
8	5	4	5	5	4	4	5	5	4.62	8	4	5	5	4	5	4	5	4	4.5
Mean	4.62	4.12	4.25	4.25	4.25	4.5	4	4.37		Mean	4.37	4.12	4.25	4.12	4.25	4.37	4.37	4.5	

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Table 9: Findings on the face validity of the designed intervention program.

Effectiveness reasons	The most effective part	Strengths	Flaws
Learning and achieving insight into schemas, modes, and	Education	Experience security and intimacy	Time limitation
Learning emotion control skills	Practical techniques	Helping recognize the emotions	The impossibility of analyzing techniques for each individual
Practical activities	Group activities	The possibility of abreaction	The impossibility of providing solutions for each individual
Ability to learn and improve interpersonal interaction skills		Helping accept problems	
		Helping get rid of problems	
		variety of experience	
		Thoughtful experiences and discussion	
		Interesting way of managing and performing the sessions	

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Table 10: Mean and standard deviation of maladaptive schema scores in pretest-posttest assessments by experimental and control groups.

Schema domain		Variable	Experiment		Control	
			Mean	SD	Mean	SD
Disconnection and Rejection	Abandonment.Instability	Pre-test	18.2286	3.18162	17.0286	2.71689
		Post-test	13.5588	3.04702	17.0857	2.90407
	Mistrust. Abuse	Pre-test	15.3714	3.81241	14.2571	2.04857
		Post-test	11.6176	3.93134	15.6857	1.98185
	Emotional deprivation	Pre-test	17.2	3.14175	15.5714	1.4407
		Post-test	13.2941	2.92874	15.1143	1.79495
	Defectiveness. Shame	Pre-test	14.9714	3.04366	14.2571	2.6936
		Post-test	12.4118	3.30397	14.0857	3.03287
	Social isolation. Alienation	Pre-test	13.5714	3.32801	14.1429	2.41494
		Post-test	10.3235	3.13069	13.4	2.14476
Impaired Autonomy and Performance	Dependence. Incompetence	Pre-test	12.8857	3.85602	14.9143	1.90002
		Post-test	10.4412	4.12818	14.6	1.75231
	Vulnerability to harm or illness	Pre-test	13.8	3.13237	13.2286	2.7449
		Post-test	10.5	2.6314	12.9714	3.02427
	Undeveloped Self. Enmeshment	Pre-test	12.7429	2.57068	15.0571	2.75406
		Post-test	10.2941	3.13851	14.4571	2.66064
	Failure	Pre-test	14.1143	3.07525	16.3429	3.28045
		Post-test	10.9706	3.05986	16.0286	3.89181
Impaired limits	Superiority	Pre-test	18.4571	3.23894	17.5714	2.51216
		Post-test	15.9118	2.84304	16.4286	2.52384
	Self-discipline. Insufficient self-control	Pre-test	16.2857	3.13961	15.3429	2.01382
		Post-test	13.1471	2.87236	15.6286	2.49807
Other- directedness	Subjugation	Pre-test	16.2571	2.53613	14.9429	2.42466
		Post-test	11.7059	2.83409	14.4	3.08888
	Self-sacrifice	Pre-test	18.3714	3.15376	17.0286	1.74028
		Post-test	13.4412	2.57248	16.7429	2.14672
	Approval-seeking. Recognition seeking Subjugation	Pre-test	14.8571	3.82825	16.1714	3.15749
		Post-test	11.2059	3.37351	15.7714	3.46483
Over vigilance. Inhibition	Negativity. Pessimism	Pre-test	13.7714	2.57917	16.2286	2.95143
		Post-test	11.6765	2.79307	15.5143	3.30215
	Punitiveness	Pre-test	15.2857	3.03481	15.9714	2.64003
		Post-test	12	2.97464	15.2571	3.15616
	.Unrelenting Standards Hyper criticalness	Pre-test	19.5714	3.36317	16.4857	1.63368
		Post-test	15.2353	3.09505	16.8286	2.44331
	Emotional inhibition	Pre-test	13.6857	3.90905	14.2286	2.55626
		Post-test	11.0882	3.41448	13.6	2.88199

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Table 11: Box's test of equality of covariance matrices.

Variables	Box's Test of Equality of Covariance Matrices		
	Box's M	F	Sig.
Disconnection and Rejection	39.75	2.43	0.10
Impaired Autonomy and Performance	34.15	3.19	0.07
Impaired Limits	1.31	0.42	0.73
Other-directedness	3.79	0.60	0.73
Over Vigilance. Inhibition	8.17	0.76	0.66

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Table 12: Multivariate tests.

Variables	Multivariate Tests		
	Wilks's Lambda	F	Sig.
Disconnection and Rejection	0.181	52.44	0.000
Impaired Autonomy and Performance	0.387	23.72	0.000
Impaired Limits	0.439	40.92	0.000
Other-directedness	0.266	57.14	0.000
Over Vigilance. Inhibition	0.384	24.03	0.000

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Table 13: Between-subject effect tests for comparison of the maladaptive schemas by each research hypothesis.

Hypothesis	Dependent variable	Source	Type III sum of squares	df	**F**	Sig.	Partial eta squared
The effectiveness of the designed intervention program on the disconnection and rejection schemas	Abandonment.Instability	BG	596.55	6	29.20	0.001	0.73
		WG	211.09	62			
	Mistrust. Abuse	BG	686.10	6	29.19	0.001	0.73
		WG	242.87	62			
	Emotional deprivation	BG	319.21	6	25.27	0.001	0.71
		WG	130.52	62			
	Defectiveness. Shame	BG	570.46	6	39.08	0.001	0.79
		WG	150.84	62			
	Social isolation. alienation	BG	452.88	6	24.60	0.001	0.70
		WG	190.19	62			
The effectiveness of the designed intervention program on the impaired autonomy and performance schemas	Dependence.Incompetence	BG	760.43	5	46.82	0.001	0.78
		WG	204.63	63			
	Vulnerability to harm or illness	BG	491.44	5	40.37	0.001	0.76
		WG	153.36	63			
	Undeveloped Self. Enmeshment	BG	640.18	5	35.93	0.001	0.74
		WG	224.45	63			
	Failure	BG	955.54	5	38.88	0.001	0.75
		WG	309.62	63			
The effectiveness of the designed intervention program on the impaired limits	Superiority	BG	264.56	3	25.66	0.001	0.54
		WG	223.35	65			
	Self-discipline. Insufficient self-control	BG	422.06	3	54.25	0.001	0.71
		WG	168.57	65			
The effectiveness of the designed intervention program on the other-directedness schemas	Subjugation	BG	492.90	4	35.56	0.001	0.69
		WG	221.73	64			
	Self-sacrifice	BG	385.51	4	34.73	0.001	0.68
		WG	177.56	64			
	Approval-seeking. Recognition seeking	BG	938.04	4	73.15	0.001	0.82
		WG	205.17	64			
The effectiveness of the designed intervention program on the over-vigilance and inhibition schemas	Negativity. pessimism	BG	660.72	5	37.59	0.001	0.75
		WG	221.48	63			
	Punitiveness	BG	606.60	5	36.92	0.001	0.75
		WG	207.05	63			
	.Unrelenting Standards Hyper criticalness	BG	363.08	5	22.90	0.001	0.65
		WG	199.78	63			
	Emotional inhibition	BG	363.08		90.22	0.001	0.65
		WG	197.88	63			

"BG" refers to between-group and "WG" refers to within-group

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