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Investigation of the Effectiveness of Schema Therapy on Referential Thinking and Its Aspects in Nurses with Job Burnout

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Abstract

Background: This study aimed to examine the impact of referential thinking, cognitive fusion, and Job burnout on individual functioning.
Objectives: This research also aimed to assess how schema therapy affects referential thinking and its different aspects in female nurses experiencing job burnout. Additionally, this study explored the long-term duration of the effects of therapy.
Methods: This research employed a semi-experimental design with pre-test, post-test, and a 3-month follow-up phases. This study included all the female nursing staff at Imam Khomeini Hospital in Tehran, Iran, from October to December 2021. Random sampling was used to select 40 participants from the study population. The experimental group underwent eight 90-min sessions of schema therapy, while the control group received no intervention and remained on the waiting list. Data were collected during the pre-test, post-test, and follow-up stages using the Maslach Burnout Inventory and Perseverative Thinking Questionnaire. Data analysis was performed in SPSS software (version 24), encompassing descriptive and inferential statistics multivariate analysis of covariance, repeated measures analysis of variance, and Bonferroni post hoc test.
Results: The results indicated that both mentioned treatments were significantly effective in reducing referential thinking and job burnout, compared to the control group at the post-test and follow-up stages ($P<0.05$). In addition to the effects of group and time, the interactive effect of group × time was significant for the key feature components ($\eta^2=0.340$, $P=0.001$, $F=13.13$), perceived cognitive failures ($\eta^2=0.095$, $P=0.037$, $F=2.67$), psychological capacity hijacking ($\eta^2=0.198$, $P=0.001$, $F=6.32$), and overall score of referential thinking ($\eta^2=0.327$, $P=0.001$, $F=12.41$). These findings indicated that the implementation of independent variables has significantly affected the components and overall score of referential thinking.
Conclusion: Based on the findings, schema therapy can be used as a therapeutic approach to reduce referential thinking and job burnout in counseling centers and psychological services.

Keywords: Burnout, Nurses, Schema therapy, Referential thinking

1. Background

Job burnout has gained significant attention in recent years, especially during the COVID-19 pandemic and its aftermath. It negatively affects the familial, social, organizational, and individual aspects of human life. Job absenteeism, organizational departure, resignation, work delay, and decreased job performance quality are its significant consequences for an organization (1). Overall, when psychological pressure becomes excessive and leads to job burnout, it can result in physical and mental consequences for members of an organization, jeopardize organizational goals, and lead to a decline in individual performance quality. Individuals working in environments exposed to such pressures often experience stress and job burnout (2). Due to the prolonged and repetitive exposure of nurses to acute stressful events, the reward circuitry of their brains is more disrupted, hindering the experience of pleasurable emotions. Consequently, negative emotional experiences, such as depressive tendencies are exacerbated in this group. Negative emotions can intensify the self-focused attention of a person, which is a key characteristic of depression and anxiety-related disorders (3).

Based on the metacognitive model, repetitive negative thoughts stem from positive and helpful metacognitive beliefs (4). According to the attributional thinking theory, repetitive negative thinking is a way of thinking about problems or negative experiences that a person goes through. It is characterized by three main features: 1) repetitiveness, 2) self-focus, and 3) difficulty in stopping thoughts. The person also experiences perceived inefficacy, and repetitive negative thoughts hijack their mental capacity (5).

Some studies suggest a positive correlation between metacognitive beliefs and repetitive negative thoughts. Studies have shown that attributional thinking moderates depression and affects individual performance on the job burnout (6). After conducting reviews, it has been found that therapeutic interventions can help reduce attributional thinking (7-9). Limited research has been conducted on the impact of therapeutic approaches and mindfulness on attributional thinking.

According to a study conducted by Kashefinishabouri et al. (2021), mindfulness-based cognitive therapy significantly reduced negative

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attributional thinking in adolescent females with eating disorders (10). Moreover, Hayeri Meybodi et al. (2021) found that those who relapse into addiction exhibit attributional thinking, whereas emotional self-awareness is negatively correlated with relapse (11). In general, attributional thinking involves the belief that the way people interpret everyday events differs based on individual experiences and that these interpretations can impact emotions and behaviors (12). Some individuals experience momentary and minor instances of this thinking without significant consequences, while others solidify and expand these beliefs in their minds. Ultimately, the repetitive recurrence of negative thoughts in the mind of an individual can threaten their mental well-being (13). Individuals who exhibit repetitive negativity tend to evaluate social events more negatively than others (14).

Most disorders exhibit a similar pattern in attributional thinking, indicating oversensitivity in this process. Increased attributional thinking can be a risk factor that worsens emotional disorders (15). Studies have demonstrated that attributional thinking can influence depression levels and have an impact on the job performance of individuals (10). Therapeutic patterns affect the way individuals think, feel, and behave; therefore, they can play a role in reducing attributional thinking (7-9). Studies have indicated that increased attributional thinking is linked to unwarranted self-perception and various mental disorders, including depression, anxiety, obsessive-compulsive disorder, post-traumatic stress disorder, social phobia, and panic disorder.

The main characteristic of attributional thinking is cognitive rumination and worry. Cognitive rumination which is focused on self-analysis (analytical thinking about oneself and symptoms) is incompatible. This cognitive style is linked to negative self-judgments, negative thoughts about the future, and cognitive inefficiency due to an excessive focus on personal memories (15). Negative repetitive thoughts not only occur in depression and anxiety disorders but also act as a precursor and predictor of their persistence and progression (16).

Therapeutic techniques help nurses replace specific patterned behaviors with healthier coping styles. When confronted with negative and attributional thinking, nurses can replace it with constructive and healthy thinking (7). Additionally, therapeutic patterns help nurses distance themselves from patterns. Instead of considering patterns as an undeniable truth about themselves, the nurses see them as intrusive entities. Therefore, therapeutic patterns help nurses bring a healthy voice into their minds by questioning patterns and thereby, empowering their healthy mindset (9).

Attributional thinking is about how people see meanings in daily events and natural happenings, and the significance of these meanings differs from person to person (14). In practical terms, when nurses adopt this perspective, they see patterns as external truths that can be challenged with real-life evidence. That is why therapeutic attributional thinking methods can impact how individuals perceive and interpret things over time (8).

2. Objectives

Due to the impact of Coronavirus and the alarming numbers of infections and fatalities, healthcare workers, including nurses, are dealing with heavy workloads and significant stress. These challenges could hinder the performance and mental well-being of this group. Consequently, exploration of the factors contributing to job burnout in future research becomes crucial. Due to the recognition of the necessity of interventions and comparative studies to pinpoint effective treatments, the findings of this research can be employed by hospitals, medical schools, healthcare practitioners, families with members working in medical settings, health policymakers, psychologists, and health researchers to reach their objectives.

3. Methods

To comprehend how the research methodology is implemented and articulated in this chapter, details are provided regarding the research design, population, sample, sample selection methodology, data collection tools, data collection techniques, data analysis approach, and the ethical considerations observed in this study. This quasi-experimental research focused on its objective, application, and methodology. The research adopted a pre-test, post-test, and follow-up design that lasted three months and incorporated a control group to ensure a comprehensive evaluation of the interventions. The statistical population of the research included all female nurses of Imam Khomeini Hospital in Tehran, Iran, in 2021. It is worth mentioning that the total number of nurses in this hospital at the time of the study was 973 individuals (N=973).

The Fleiss formula was used to determine the sample size, considering σ=61.1, 2d=507.4, statistical power=0.90, and α=0.05 based on the previous research (17). According to the formula, the sample size was determined to be 12.07. To account for potential dropout and to enhance the generalizability power, 20 individuals were considered in each group.

.The researcher utilized the simple random sampling technique to select participants. From the statistical population of the hospital, 40 nurses were randomly chosen (Figure 1). Afterward, by employing a table of random numbers, the participants were assigned to two groups, namely intervention and control groups. Inclusion criteria for this study included female gender, provision of informed

consent for participation, the ability to attend intervention sessions, the age range of 25-35 years, a minimum of one year of nursing experience, possession of a bachelor's degree or higher levels of education, formal employment as a nurse, working night shifts, and simultaneous participation in educational-therapeutic programs in the field of mental health.

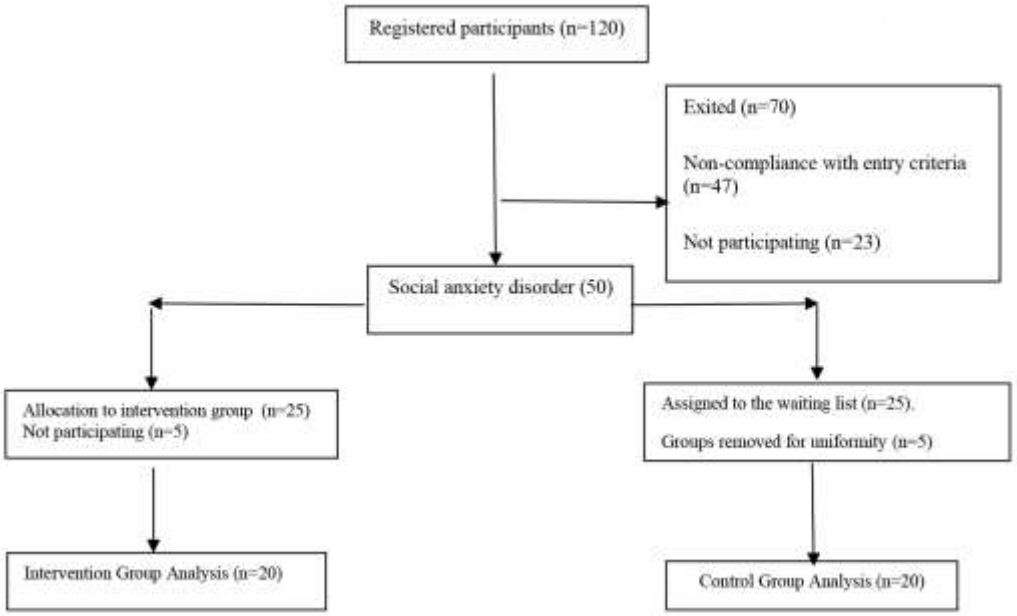

Figure 1. Flow diagram of the study

Exclusion criteria were absence from more than two sessions of therapeutic meetings, chronic diseases, or usage of specific medications related to the disease. To conduct the research, the researcher, an Imam Khomeini Hospital staff member, coordinated with the hospital authorities, informed them about the study and initially provided information to the nursing staff in a preliminary session about the research objectives and ethical principles. The researcher interviewed voluntary nurses who expressed interest in participating in the study.

After obtaining ethical approval (IR.IAU.K.REC.1401.026), the intervention group received a group therapy intervention for eight 90-minute sessions weekly (Table 1) (18). It should be noted that the researcher conducted all sessions in one of the rooms of the hospital. The control group did not receive any patterned therapeutic education during this period and remained on the waiting list. After the post-test sessions, individuals in the control group also underwent three sessions of patterned therapeutic intervention to adhere to ethical considerations. After completion of the therapeutic sessions, a post-test was conducted for both groups under the same conditions. Participants answered the same questionnaires as at the pre-test stage. Additionally, three months after the post-test stage, individuals from all three groups responded to the questionnaires at the follow-up stage.

Table 1. Stages and sessions of schema therapy training (18)

Session Number	Session Content
First	Introduction and relationship building, expressing the importance and purpose of schema therapy, discussing issues of clients in the context of schema therapy
Second	Analyzing solid proof that either supports or contradicts schemas formed from present and past life experiences, conversing about and deliberating on aspects of existing schemas alongside those that are well-functioning
Third	Teaching cognitive techniques, such as schema validation tests, redefining existing schema-supporting evidence, and evaluating the pros and cons of coping styles
Fourth	Teaching the strengthening of the healthy adult concept in the minds of the clients, identifying unmet needs, and providing solutions to unblock suppressed emotions
Fifth	Teaching healthy communication and imaginary dialogue and teaching experiential techniques (mental imagery of problematic situations and confronting the most problematic aspects)
Sixth	Teaching therapeutic relationships, relationships with significant people in life, role-playing, and performing tasks related to new behavioral patterns
Seventh	Examining the pros and cons of healthy and unhealthy behaviors and providing solutions to overcome behavioral change obstacles
Eighth	Reviewing materials of previous sessions in general and practicing learned solutions

Maslach Burnout Inventory

This questionnaire was designed and developed by Maslach et al. (19). The questionnaire consists of 22 questions measuring three components, namely Emotional Exhaustion (items 1, 2, 3, 8, 13, 14, 16, and 20), Personal Accomplishment (items 4, 7, 9, 12, 17, 18, 19, and 21), and Depersonalization (items 5, 10, 11, 15, and 22). The questionnaires were scored based on a Likert scale ranging from 0 (never) to 6 (very often). Some items, such as 1, 2, 3, 5, 6, 8, 10, 11, 13, 14, 15, 16, 20, and 22, were reverse-scored. The score range for the Maslach Burnout Inventory questionnaire was from 22 to 110.

It should be mentioned that the scores for each aspect were calculated separately. Scores of 27 or higher in Emotional Exhaustion indicate a high level of emotional fatigue, scores of 13 or higher in Depersonalization suggest a high level, and scores of 31 or lower in Personal Accomplishment indicate a low level of personal accomplishment. If an individual scores high in Emotional Exhaustion or Depersonalization and low in Personal Accomplishment, it implies job burnout. Generally, scores of 1-22, 22-66, and above 66 indicate weak, moderate, and excellent levels of job burnout, respectively.

The internal consistency of all three dimensions of the Maslach Burnout Inventory in the original sample was acceptable, with Cronbach's alpha ranging from 0.71 to 0.90 (19). In internal studies, the reliability of the job burnout Questionnaire was examined, resulting in a Cronbach's alpha of 0.84 (20). In the present study, Cronbach's alpha was used to assess the reliability of the questionnaire, and a coefficient of 0.91 was obtained for the total score.

Perseverative Thinking Questionnaire

This self-report questionnaire, consisting of 15 items, was developed by Ehring et al. (5). It includes three sub-scales measuring the main features of attributional thinking: Features of Attributional Thinking (items 1, 2, 3, 6, 7, 8, 11, 12, 13), Perceived Perceptual Inefficiency (items 4, 9, 14), and Capture of Mental Capacity (items 5, 10, and 15). It is scored based on a four-point Likert scale ranging from 0 (never) to 4 (always) to indicate their agreement or disagreement with each statement.

The score range is from 0 to 60, where a higher score indicates more frequent negative or repetitive attributional thinking. Generally, scores of 25-45 and those above 45 indicate moderate and severe levels of negative attributional thinking, respectively. The creators of the Perseverative Thinking Questionnaire reported good internal consistency with a Cronbach's alpha of 0.95 for the total test and 0.94, 0.83, and 0.86 for the sub-scales of Features of Attributional Thinking, Perceived Perceptual Inefficiency, and Capture of Mental Capacity, respectively (5). The questionnaire also significantly correlated with other attributional thinking assessment tools, indicating high convergent validity (21). In the present study, the reliability of the questionnaire was examined using Cronbach's alpha, and a coefficient of 0.71 was obtained for the total score.

4. Results

Average age of participants was 32.28 years old with a standard deviation of 4.58 years. In the treatment group, the average age was 33.65 with a standard deviation of 4.87 years, while in the control group, it was 33.63 with a standard deviation of 4.56 years. One-way analysis of variance (ANOVA) showed no significant age differences between the two groups. In the treatment group, 15 participants had a bachelor's degree, and two had a postgraduate degree. In the control group, 16 participants had a bachelor's degree, and three had a postgraduate degree.

Pearson's chi-square test indicated no significant differences between the groups in terms of education level. Regarding marital status in the treatment group, eight participants were single, eight were married, and one was separated from their spouse. In the control group, six participants were single, 11 were married, and two were separated from their spouses. Pearson's chi-square test showed no significant differences between the groups in terms of marital status. The average work experience of participants was 6.00±1.74 years, respectively. In the treatment group, the average work experience was 6.94±1.88 years while in the control group, it was 6.84±1.67 years. One-way ANOVA revealed no significant differences in work experience between the groups.

Table 2 shows that the mean values of components and total scores of referential thinking, cognitive fusion, and job burnout in the two experimental groups have decreased at the post-test and follow-up stages. In contrast, similar changes were not observed in the control group at the aforementioned stages.

Table 3 shows that the implementation of independent variables has a significant impact on the components of key features (Wilks' Lambda=0.543, η^2=0.263, P=0.001, F=8.94), perceived cognitive failures (Wilks' Lambda=0.814, η^2=0.098, P=0.035, F=2.71), psychological capacity hijacking (Wilks' Lambda=0.710, η^2=0.157, P=0.002, F=4.66), and the total score of referential thinking (Wilks' Lambda=0.517, η^2=0.1, P=0.001, F=9.78).

Table 4 shows that in addition to the group and

time effects, the interactive effect of group × time is significant for the key feature components (η^2= 0.340, P = 0.001, F= 13.13), perceived cognitive failures (η^2=0.095, P = 0.037, F = 2.67), psychological capacity hijacking (η^2=0.198, P = 0.001, F = 6.32), and overall score of referential thinking (η^2 = 0.327, P= 0.001, F= 12.41). These findings indicate that the implementation of independent variables has significantly affected the components and overall score of referential thinking.

Results of the Bonferroni test regarding the comparison of the effects of the two intervention and control groups are shown in Table 5. They indicated that the differences in the mean of components and the overall score of referential thinking between the two control and schema therapy groups were statistically significant. Accordingly, schema therapy reduced the average of components and the overall score of referential thinking at the post-test and follow-up stages, compared to the pre-test stage. Based on this finding, it was concluded that schema therapy reduced referential thinking in nurses.

Table 2. Mean values of referential thinking components and total scores at the three stages of the study

Component	Groups	Pre-test	Post-test	Follow-up
Key features	Experimental	22.35±4.39	11.82±2.40	12.06±2.70
	Control Group	20.26±4.60	19.58±3.76	19.37±4.13
Perceived cognitive failures	Experimental	7.71±2.20	4.53±1.81	4.53±1.87
	Control Group	7.47±2.17	6.89±2.05	7.00±2.08
Psychological capacity hijacking	Experimental	7.29±2.52	4.35±1.54	3.47±1.77
	Control Group	6.37±2.31	6.95±12.2	6.89±2.31
Total Score	Experimental	37.35±7.42	20.94±4.67	20.35±4.31
	Control Group	34.11±6.98	33.42±6.63	32.95±5.53

Table 3. Results of multivariate analysis test regarding the evaluation of the effect of independent variable

Dependent Variable	Wilks's lambda	F	P	η^2	Test Power
Key Features	0.543	8.94	0.001	0.263	0.999
Perceived cognitive failures	0.814	2.71	0.035	0.098	0.731
Psychological capacity hijacking	0.710	4.66	0.002	0.157	0.940
Total Score	0.517	9.78	0.001	0.281	1.00

Table 4. Results of repeated measures analysis of variance in explaining the effect of independent variable

Variable	Effects	SS	MS	F	P	η^2
Key Features	Group effect	504.03	921.27	13.95	0.001	0.354
	Time effect	1039.45	773.88	68.50	0.001	0.573
	Interactive effect group×time	643.18	1249.48	13.13	0.001	0.340
Perceived cognitive failures	Group effect	72.72	179.16	10.35	0.001	0.289
	Time effect	97.46	212.08	23.44	0.001	0.315
	Interactive effect group×time	44.51	424.59	2.67	0.037	0.095
Psychological capacity hijacking	Group effect	82.27	223.51	9.39	0.001	0.269
	Time effect	98.70	257.83	19.52	0.001	0.277
	Interactive effect group×time	110.87	447.63	6.32	0.001	0.198
Total Score	Group effect	1462.14	1957.47	19.05	0.001	0.428
	Time effect	2712.85	1767.74	78.27	0.001	0.605
	Interactive effect group×time	1718.97	3532.72	12.41	0.001	0.327

SS: sum of squares, MS: mean squares

Table 5. Follow-up test results of Bonferroni for pairwise comparisons of groups and time effects

Variables	Times		MD	SE	P-value
Key features	Post-test	Pre-test	6.79	0.71	0.001
	Follow-up	Pre-test	6.21	0.75	0.001
	Follow-up	Post-test	-0.58	0.55	0.886
Perceived cognitive failures	Post-test	Pre-test	2.07	0.38	0.001
	Follow-up	Pre-test	1.90	0.39	0.001
	Follow-up	Post-test	-0.17	0.41	1.00
Psychological capacity hijacking	Post-test	Pre-test	1.68	0.43	0.001
	Follow-up	Pre-test	1.91	0.43	0.001
	Follow-up	Post-test	0.24	0.34	1.00
Total Score	Post-test	Pre-test	10.45	1.17	0.001
	Follow-up	Pre-test	10.03	1.13	0.001
	Follow-up	Post-test	-0.42	1.09	1.00

MD: mean deviation, SE: standard error

5. Discussion

This study aimed to investigate the effectiveness of schema therapy on referential thinking and its dimensions (key features, perceived cognitive failures, and psychological capacity hijacking) in nurses experiencing job burnout. The Bonferroni test indicated significant differences between the schema

therapy and control groups in terms of the average scores of components and overall referential thinking. During the post-test and follow-up stages, schema therapy resulted in a significant decrease in referential thinking component scores and overall scores, compared to the pre-test phase. However, no similar changes were observed in the control group during the research period. Therefore, it can be concluded that schema therapy reduces referential thinking in nurses.

This finding aligns with those of the studies performed by Pilkington et al. (7), Bernstein et al. (8), and Peters et al. (9). Lowenstein et al. (2020) also found that schema-based group therapy for adults with low immunity and personality problems was effective by improving their mental health (22). Referential thinking is described as repetitive, uncontrollable, and sustained cognitive activity focusing on negative aspects of oneself and the world (23). Individuals experiencing various mental disorders report repetitive thoughts about their problems or negative experiences, making it challenging to control these thoughts (24). Negative repetitive thoughts are not only present in depressive and anxiety disorders but also serve as precursors and predictors of these disorders (25). Individuals with a tendency for negative repetitive thinking also evaluate negative social events more negatively than others (15).

Therefore, schema therapy techniques assist nurses in replacing maladaptive schema patterns with healthier coping styles, enabling them to confront negative and referential thinking with constructive thoughts (7). Schema therapy also helps nurses distance themselves from maladaptive schemas, viewing them not as absolute truths but as intrusive entities. Therefore, it helps nurses question their schemas, bringing forth a healthy voice in their minds, and empowering their healthy mindset (9).

Moreover, schema therapy aids nurses in evaluating the accuracy of their schemas. Through the usage of this therapeutic approach, nurses perceive schemas as external truths, allowing schema therapy to combat the effects of tangible and experiential evidence against them, thus maintaining its effectiveness over time (8). Regarding the sustainability of the effects of schema therapy on referential thinking, it is notable that therapeutic techniques assist nurses in replacing specific schema-driven behavioral patterns with healthier coping styles. When confronted with negative and referential thinking, schema therapy encourages substituting these thoughts with healthier and constructive alternatives (7).

Additionally, schema therapy assists nurses in distancing themselves from their schemas, no longer regarding them as absolute truths but as intrusive entities. Consequently, schema therapy helps nurses create a healthy voice by questioning their schemas and strengthening their healthy mindset (9). Furthermore, the therapeutic approach combines cognitive, behavioral, gestalt, and psychodynamic approaches to enhance the ability of individuals to distinguish cognitive and emotional processes. Schema therapy is a valuable approach that focuses on identifying healthy responses, recognizing the underlying causes of maladaptive schemas and thoughts, and helping individuals identify situations that trigger negative behaviors. By replacing these negative behaviors with healthy ones, schema therapy promotes enduring change in individuals, which is why it is effective in the long term.

Research Limitations

In research endeavors, there are typically constraints that, if overcome, can lead to more accurate results. The present study is no exception, and the limitations encountered during its execution are outlined in this section. This study was conducted on female nurses at Imam Khomeini Hospital in Tehran in 2021. Therefore, the findings are only applicable to this particular group of people. It is essential to exercise caution when applying these findings to a broader population due to the small sample size and the limited representativeness of the sample. The quality of the findings was affected by sample dropout, mainly due to shift work, and incomplete or inaccurate questionnaire responses.

It was challenging to assess the economic, emotional, and psychological states of participants through the questionnaire, which could have influenced the research outcomes. Data collection was also difficult due to various factors, such as stress among nurses during the COVID-19 era, boredom, and the belief of some nurses in the inefficacy and futility of such research. During the pandemic, collecting accurate data from nurses was challenging due to various factors, such as work-related fatigue and imprecise questionnaire completion.

The three-month follow-up period of the study may be considered short based on the precedent set by previous research. A longer follow-up duration could provide a more comprehensive understanding of the long-term effects of schema therapy. The researcher faced resource and logistical constraints while implementing the schema therapy protocol, resulting in only eight sessions being conducted. To address this issue, it is recommended that health and treatment authorities collaborate with mental health professionals to design self-help materials on cognitive schema approaches. These resources could greatly benefit medical students, chronic patients, and the community at large with the support of scientific and media promotion.

6. Conclusion

In summary, schema therapy and mindfulness training, with a strong research background, are suitable strategies for improving referential thinking, job burnout, and cognitive fusion in nurses experiencing job burnout. Based on the explanation and literature review, the methods effectively reduce referential thinking, job burnout, and cognitive fusion among nurses experiencing job burnout. The results of this study have practical implications for enhancing referential thinking, job burnout, and cognitive fusion in nurses with job burnout. The intervention provided in this research can be considered an alternative to neuropathic drugs.

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Conflicts of interest

The authors declared no conflict of interest.

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