

The Effectiveness of Self-Differentiation Training on Cognitive Emotion Regulation and Psychosomatic Symptoms of Nurses

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Quantitative Study

Abstract

Background: Nurses are exposed to mental and physical illnesses due to burnout and high job stress and lack of adequate adaptation resources, and ultimately, reduced mental health. The aim of this study was to determine the effectiveness of self-differentiation training on psychosomatic symptoms and cognitive emotion regulation in nurses.

Methods: This quasi-experimental study was conducted with a pretest-posttest design and a control group. The study population consisted of nurses of Omid and Jamaran hospitals in Tehran, Iran. From among them, 36 nurses were selected based on Morgan's table using convenience sampling method and were randomly divided into two groups (experimental and control) of 18 individuals. The experimental group underwent 10 training sessions (once a week for 60 minutes) based on Bowen's system theory, during which time the group did not receive training. Screening for Somatic Symptom Disorders-7 (SOMS-7) questionnaire and Cognitive Emotion Regulation Questionnaire (CERQ) were administered in both groups before and after the training sessions. Data were analyzed using repeated measures analysis of variance (ANOVA) in SPSS software. The significance level of the tests was considered to be 0.05. This article is taken from a postdoctoral thesis in psychosomatic medicine and psychotherapy between Isfahan University of Medical Sciences, Iran, and Albert Ludwigs University of Freiburg, Germany. This article was approved under the ethical codex IR.MED.REC.1399.465 of the Isfahan University of Medical Sciences.

Results: The results showed that self-differentiation training was effective on psychosomatic symptoms and cognitive emotion regulation in nurses ($P < 0.001$).

Conclusion: It can be concluded that self-differentiation training was effective on psychosomatic symptoms and cognitive emotion regulation in nurses.

Keywords: Emotional regulation; Psychophysiological disorders; Cognition

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Introduction

Nurses are the largest specialist community in the health care and education system; nurses constitute 80% of a hospital's overall staff, led by their health, which plays a crucial role in how medical services can be delivered (Khamisa, Oldenburg, Peltzer, & Ilic, 2015). In hospitals, the recruiting and retaining of staff is essential and vital, and recently it has come to managers' attention that the situation of nurses can increase the efficiency of hospitals. Moreover, not paying attention to the situation of nurses can lead to frustration and loss of work motivation, and can have a profound impact on the social and economic development of a country (Amayo and Foucault, 2015). Research has shown that nurses are exposed to mental and physical illnesses due to burnout, high job stress, lack of adequate adaptation resources, and ultimately, reduced mental health (Chernis, 2016).

Nurses experience physical and mental harm (Dickinson & Wright, 2008; Jaradat et al., 2012). High levels of work stress among nurses can lead to increased work-related injuries, late arrivals, and lack of training, resulting in lower productivity and accountability (Lee & Wang, 2002), which may affect nurses' professional performance, which in turn may reduce the quality of patient care (Kane, 2009; Kawano, 2008; Lindegard, Larsman, Hadzibajramovic, & Ahlborg, 2014). A previous study showed that Hungarian health care workers are faced with increasing strain, and emotional fatigue has been high among them (Pikó, 2006). A combination of stressful working conditions on the one hand, and psychosomatic symptoms (PSS) and musculoskeletal problems on the other has been documented in several studies.

In Indian hospital nurses who recorded high self-identified stress ratings, the incidence of psychosomatic disorders increased; in addition, stomach ache, back pain, and stiffness of the shoulders and neck were correlated with exposure to stressors at home and at work (Kane, 2009). A research on the prevalence of musculoskeletal complaints among nurses found that nurses had back complaints (36%), arm and neck complaints (30%), and leg complaints (16%); moreover, most nurses (89%) considered nursing work to be physically exhausting (Engels, van der Gulden, Senden, & van't Hof, 1996). Violante et al. (2004) reported a prevalence of 44% for back disorder among female nurses.

Emotional regulation skills consist of the ability to be aware of, recognize, and name emotions, interpret physical emotions related to emotion correctly, understand emotional arousal, actively adjust negative emotions to achieve better feelings, and accept negative emotions when necessary. Furthermore, adjustment skills include the individual's ability to deal with negative emotions (when negative emotions cannot be changed) instead of avoiding them in a state of distress and compassionate understanding (encouraging and calming oneself) to achieve important goals. It is emotional. Studies have shown that all of these skills are significantly associated with different indicators of mental health in the general and clinical population (Bamonti et al., 2019), and difficulty in emotional regulation can be the beginning of the onset of mental disorders (Balzarotti, Biassoni, Villani, Prunas, & Velotti, 2016).

Many strategies have been suggested for the improvement of psychosomatic symptoms and cognitive regulation of emotions among nurses, including self-differentiation training. Murray Bowen is one of the pioneers in family therapy whose studies in this field have led to the formation of an intellectual framework on which many of the dominant currents of family therapy were later based (Lampis, 2016). His theory, called family systems theory, is one of the most widely used family therapy methods (Heintzelman, Murdock, Krycak, & Seay, 2014). The cornerstone of this theory is a concept called self-differentiation. Self-differentiation is a person's ability to maintain individuality and independence of "self" in close relationships with others and his/her

ability to balance reason and emotion (Ross & Murdock, 2014). In other words, differentiation can be examined at two levels, one as a process that occurs within the individual, which includes components of my position and emotional responsiveness, and the other as a process that occurs in interpersonal relationships, which includes a component. The term "my position" means a clear sense of "self" and independence of thought and belief (Paine, Jankowski, Sandage, 2016). Its logic and responsiveness are based on emotions. However, on an interpersonal level, both fusions refer to the loss of "self"-independence and dissolution and fusion in close relationships with others, especially important people in one's life. Feelings of threat and vulnerability in relationships and sometimes the tendency to adopt defensive behaviors such as distancing oneself, abrupt termination of relationships, and so on. What is of most importance is the relationship with others. In terms of the consequences of differentiation of individuals, Bowen hypothesizes that higher levels of their differentiation are associated with consequences such as higher levels of overall psychological and physiological function and that differentiated individuals have greater psychosomatic balance (Lampis, 2016). The results of numerous studies aimed at discovering and supporting the structure of "self-differentiation" are consistent with Bowen's theory. Therefore, the present research project examined the effectiveness of self-differentiation training on reducing psychosomatic complaints and promoting cognitive emotion regulation in nurses in order to form hypotheses for future researches.

Methods

The present quasi-experimental study was conducted using a pretest-posttest design and a control group in the late winter of 2018 at the Avista Counseling Center in Tehran, Iran. The study population consisted of nurses of Omid and Jamaran hospitals in Tehran (n = 177). From among them, 36 nurses were selected using convenience sampling method and were randomly divided into 2 groups (experimental and control) of 18 individuals. The inclusion criteria consisted of receiving a score of 14 and above in the Physical Health Questionnaire (PHQ), willingness to participate in the research, free time to participate in meetings continuously, and lack of attendance in any training courses and counseling during training. The exclusion criteria were absence from more than 2 sessions of treatment. For data collection, the PHQ, Screening for Somatic Symptom Disorders-7 (SOMS-7) questionnaire, and Cognitive Emotion Regulation Questionnaire (CERQ) were used.

Cognitive Emotion Regulation Questionnaire: The CERQ was developed by Garnefski et al. and includes 10 subscales (Garnefski et al., 2007). Each of the subscales of this questionnaire has 4 items. The higher the score of each subscale, the more the strategy is used by the individual. The total reliability of compatible and incompatible strategies was obtained to be 0.91 and 0.87, respectively, using Cronbach's alpha coefficient (Garnefski et al., 2007). In the Iranian culture, Besharat and Bazzazian (2015) evaluated the reliability of the test among a sample of students aged 15 to 25 years. They reported a Cronbach's alpha coefficient of 0.82 for its relationship with depression and anxiety (Besharat & Bazzazian, 2015). In the present study, the reliability of this questionnaire was found to be 0.80 and 0.79 using Cronbach's alpha.

Screening for Somatic Symptom Disorders-7 Questionnaire: The SOMS-7 is a 53-item questionnaire designed to evaluate medication results in patients with somatic symptom disorder. This tool addresses all facets of somatic symptoms and measures the symptoms/symptoms of patients in 7 days. Each sign/symptom was scored on a Likert scale ranging from 0 (lowest severity) to 4 (maximum severity). The SOMS-7 is a new scale displaying two different indexes, including signs/symptoms and severity

of somatic symptoms. These two indices distinguish patients with somatic symptom disorders from those who do not meet all of the criteria. Hiller et al. reported this questionnaire to be highly accurate and sensitive. Furthermore, Ebrahimi et al. (2018) evaluated the reliability and validity of this questionnaire through automated symptoms and clinical interviews and reported a 72-hour test-retest reliability of 0.85.

The method of conducting the research was that after obtaining permission from the hospital officials to conduct the research, there was a public call. After the volunteers were identified based on the study inclusion criteria, the objectives and method of implementation of the research were explained to the participants and their consent was obtained. The subjects were randomly assigned to experimental and control groups through lottery method, and both groups simultaneously answered the Psychosomatic Complaints Scale (Takata and Sakata, 2004) and CERQ (pretest). The experimental group received 10 training sessions once a week (60 minutes) according to the Young and Long protocol, and the control group did not receive any training. At the end of the training and 2 months later, both groups answered the questionnaires again (posttest and follow-up). The content of the self-differentiation training sessions is presented in table 1.

Table 1. Content of self-differentiation training

Session	Content of training sessions
1	Sociability and reference, clarifying the aims, regulations, and the number of meetings, administrating the pretest, presenting an outlook of future meetings and clarifying the subject, providing homework to do at home, evaluating reactions to the presented information
2	Defining differentiation, clarifying the vindication of manner based on wisdom and sensations, clarifying the connection between ongoing problems of life and differentiation, introducing differentiated and undifferentiated aspects, providing homework to do at home, evaluating reactions to the presented information
3	Clarifying the four components of differentiation, clarifying the relevance of every element of differentiation with excessive attachment and self-belief, explaining coping strategies, providing homework to do at home, evaluating reactions to the presented information
4	Clarifying the reasoning in the family tricuspid, teaching the effects of the tricuspid constructing on the ongoing problem and family relation, teaching the triangulation methods, providing homework to do at home, evaluating reactions to the presented information
5	Clarifying the family plan procedure, clarifying the ongoing family issue and effect of the plan procedure on it, negotiating the state of children, their personalities, and its relevance to the transition of the parents' differentiation, providing homework to do at home, evaluating reactions to the presented information
6	Surveying the impact of the family of the origin on the living environment, clarifying the relevance between ongoing issues and problems of life in the paternal home, intellectual and bodily reversal to father's house, reviewing and correcting learned patterns, providing homework to do at home, evaluating reactions to the presented information
7	Clarifying the constitution of several generational transition procedures and transition of the differentiation level to the next generations, the relation of several generational transition procedures, ongoing issues, and inhibiting methods, designing the trained plan
8	Clarifying the decoration of incorrect links formed in the original family, identifying the feeling aroused in people when they do not see their family members for one day, surveying the impact of the stage and manner of relationship with the members of the main family on their everyday lives
9	Explaining the awareness of their defense mechanisms and how they are transferred from previous generations, awareness of the contradiction between what they are and what they should be, explaining the types of defense mechanisms (e.g., repression, return, projection, intrusion, compensation, rebound, reverberation, and reverse reaction), investigating members' experience in the field of defense mechanisms and determining the most used defense mechanism
10	Aim: Finishing the course and summing up 1.Reviewing the previous sessions 2.Reviewing the lessons learned in these sessions 3.Receiving feedback from the members regarding their attitudes and feelings towards these training sessions 4.Appreciating the participants' active participation in the sessions

Table 2. Frequency distribution and demographic characteristics of participants

Demographic variables		Experimental group		Control group		P-value
		Frequency	Percentage	Frequency	Percentage	
Gender	Female	11	61.1	10	55.6	27.0
	Male	7	38.9	8	44.4	

In the descriptive statistics section, central indicators and dispersion, such as mean and standard deviation, were used. In the inferential statistics section, repeated measures analysis of variance (ANOVA) was used. To test the defaults of the inferential test, the Levin test (to check the homogeneity of variances), Kolmogorov-Smirnov test (to normalize the distribution of data), Mbox test, and Mauchly's sphericity test were used. To compare the two groups in terms of demographic variables (gender), chi-square test was used. The above statistical analyses were performed using SPSS software (version 22; IBM Corporation, Armonk, NY, USA). The significance level of the tests was considered to be 0.05.

Results

The mean (standard deviation) age of the participants in the experimental and control group was 38.94 (5.49) and 37.13 (6.55) years, respectively. As shown in table 2, because the significance level is greater than 0.05, the two groups are the same in terms of gender distribution.

The mean and standard deviation of the studied variables are presented in table 3.

Repeated measures ANOVA was used to test the important differentiation between the psychosomatic symptom score and cognitive-emotional function in the experimental and control groups. The results of the M-box, Mauchly's sphericity, Kolmogorov-Smirnov, and Levin tests were tested before the repeated measures were analyzed for the assumptions. The findings of the Kolmogorov-Smirnov test have also shown how normal the data are believed. Since the M-box test was not significant for any of the research variables, the condition of homogeneity of variance-covariance matrices was correctly observed. Moreover, the non-significance of all of the variables in the Levin test approved the condition of equality of intergroup variances, and showed that the amount of variance of the dependent variable was equal in both groups. It was significant for the research variables, and therefore, the assumption of the equality of variances within the subjects (sphericity assumption) was observed (Mauchly's $W = 0.83$; $df = 2$; $P < 0.05$).

Table 3. Mean and standard deviation of variables

Variable	Group	Pretest Mean ± SD	Posttest Mean ± SD	Follow-up Mean ± SD
Psychosomatic symptoms	Experimental	10.35 ± 6.15	7.30 ± 4.31	7.90 ± 4.26
	Control	10.05 ± 6.13	9.90 ± 6.14	9.95 ± 6.13
Positive Cognitive Emotion Regulation	Experimental	30.90 ± 9.33	40.60 ± 11.75	41.35 ± 11.67
	Control	30.50 ± 8.23	31.20 ± 8.54	31.05 ± 8.35
Negative Cognitive Emotion Regulation	Experimental	39.93 ± 8.27	31.44 ± 6.85	32.79 ± 7.15
	Control	38.11 ± 8.41	39.53 ± 8.77	39.19 ± 8.94

SD: Standard deviation

The results of repeated measures ANOVA showed that the levels of significance of all tests were significant at the level of 0.0001, indicating a significant difference in the average of the tests in terms of the effectiveness of their differentiation training on improving research variables in the experimental and control groups. It is noteworthy that Wilks' Lambda test with a value of 0.07 and $F = 204.09$ showed a significant difference between the effectiveness scores of the differentiation training on improving the research variables in the experimental and control groups at a significance level of 0.0001. The repeated measures ANOVA results are presented in table 4.

The results presented in table 4 indicate that the repeated measures ANOVA is significant for the within-subjects effects (time) and between-subject effects. These results mean that regardless of the group effect, the time effect alone is significant. Group interaction and time are also significant. Bonferroni post hoc test was also used to compare pairs in groups.

Table 4. Comparison of the research variables using repeated measures analysis of variance in the pretest, posttest, and follow-up in the experimental and control groups

Variables	Source	SS	df	MS	F	P	Eta
Psychosomatic symptoms	Time	201.35	2	100.67	283.03	0.001	0.88
	Group * Time	133.61	2	66.80	187.82	0.001	0.83
	Error	27.03	68	0.35			
	Group	143.00	1	143.00	36.68	0.001	0.49
	Error	148.11	34	3.89			
Positive Cognitive Emotion Regulation	Time	188.06	2	155.34	162.42	0.001	0.81
	Group * Time	177.26	2	146.42	153.09	0.001	0.80
	Error	44.00	68	0.95			
	Group	685.00	1	685.00	64.56	0.001	0.63
	Error	387.25	34	10.19			
Negative Cognitive Emotion Regulation	Time	191.63	2	95.81	166.27	0.001	0.83
	Group * Time	126.51	2	63.28	109.77	0.001	0.76
	Error	39.18	68	.57			
	Group	267.59	1	267.59	4.93	0.033	0.12
	Error	1843.81	34	54.23			

SS: Sum of Squares; df: Degree of freedom; MS: Mean of Squares

Table 5. Results of Bonferroni post hoc test in comparison of research variables

Variable	Group	Steps	posttest	follow-up
Psychosomatic symptoms	Experimental	Pretest	3.05*	2.45*
		Posttest	-	-0.60
	Control	Pretest	0.10	0.13
Positive Cognitive Emotion Regulation	Experimental	Posttest	-	0.09
		Pretest	-9.70*	-8.45*
	Control	Pretest	0.11	0.07
Negative Cognitive Emotion Regulation	Experimental	Posttest	-	0.09
		Pretest	10.33*	9.18*
	Control	Pretest	0.19	0.13
		Posttest	-	0.44

The results presented in table 5 show that the score of the cognitive emotion regulation variable in the experimental group in the posttest stage is higher than the control group. However, the posttest score of the psychosomatic symptoms in the experimental group was lower than that in the control group. In other words, self-differentiation training has been highly effective in improving cognitive emotion regulation and psychosomatic symptoms. These results also show that psychosomatic symptoms and cognitive emotion regulation did not increase significantly in the experimental group compared to the control group.

Discussion

The findings of the present study showed that self-differentiation training is effective on psychosomatic symptoms and cognitive emotion regulation in nurses. The results of this study were in line with the findings of Jaradat, Nijem, Lien, Stigum, Bjertness, and Bast-Pettersen (2016).

A study in Iran showed that the Bowen theory should be realistic for the Iranian culture and that self-differentiation is in line with mental well-being and marital consistency (Yoosefi, Etemadi, Bahram, Bashlideh, & Shir-Bagi, 2010). Zarei, Farahbakhsh, and Esmaeili (2011) reported a significant relationship between self-differentiation, trust, and prudence. The principle of auto-differentiation, according to Bowen, can clarify this result. A more distinguished person will have a better sense of interaction with others. An individual with a strong sense of self has a strong identity, personal conviction and opinion, and a firm belief in what should be or should not be done based on his/her own experiences and reasoning in life (Bowen, 1978). Differentiated people have a good sense of themselves, sedated responses in emotional circumstances, and make decisions based on their confidence and intelligence (Ross & Murdock, 2014). They do not get feelings overloaded and can take I-positions. This means they are able to possess their thoughts and emotions and say what they believe without conforming or pleasing to others. Furthermore, differentiated individuals do not need to be emotionally isolated and be in a position to have relationships with acceptable borders (Alaedin, 2008).

In explaining this finding, we can say that according to Bowen (1978) low differentiation is the source of individual, family problems, and disorders in the

family system. It is a theoretical argument that high differentiation, to a large extent, people enjoy. It becomes emotional intimacy, without individuals having to sacrifice their true selves (Alikhani, Geravand, Rashidi, Janjani, Zakiee, & Janjani, 2014). NG and Spark (1973) stated that people with low differentiation may experience high levels of confusion and conflict. High levels of self-differentiation lead to better psychological adjustment and the ability to solve social problems (Park & Park, 2017). Moreover, better-differentiated individuals can cope with stress. They have fewer physical and mental problems and are more satisfied with their relationships with others (Cabrera-Sanchez, & Friedlander, 2017). Differentiation is a clean emotional process. A person differentiated in dealing with life's problems and issues can deal with them rationally and logically and can avoid dealing with issues emotionally. Therefore, these people can solve problems peacefully. Thus, according to Bowen's theory, it can be said that nurses who have a low level of differentiation or are indistinguishable are less able to make rational decisions and act more emotionally in dealing with life issues and problems. Using constructive skills to solve problems, apply emotion and emotion, and control negative emotions and interaction with others plays an important role in reducing psychosomatic symptoms and improving cognitive emotion regulation (Lahav, Stein, & Solomon, 2016). In this training method, nurses' emotional reactions can be organized so that they can vent their emotions in such a way that does not disrupt the family hierarchy, and this training method can prevent emotional problems and provide reasonable and acceptable behaviors. Nurses find themselves in an unfavorable situation due to high stress, weakness, or the need for strength. Self-differentiation training helps to manage and resolve conflict logically in dealing appropriately with conflict and constructive communication. The present study, like any other research, has limitations, the expression of which can specify the findings and suggestions of the research and the next researchers in taking effective measures to deal with the threat of internal and external validity of research projects. To help. The first limitation was that the research results were limited to nurses. This study was conducted in a population of nurses in Omid and Jamaran hospitals in Tehran, and caution should be exercised in extending the results to other populations and regions and cities. It is suggested that this research be conducted in another sample group, and its results be evaluated and compared with the results of this research. It is suggested that this research be done in other cities, and its results be evaluated. It is suggested that this research be followed up as group counseling after individual training. Considering the effect of self-differentiation training on psychosomatic symptoms and cognitive emotion regulation in nurses, it is suggested that psychologists use solution-based training extensively in groups. Hospitals and the Organization of the Psychology and Counseling System, by implementing solution-oriented training workshops, can provide the grounds for psychologists, physicians, and nurses to become more familiar with the concepts of education and solution-oriented training.

Conclusion

According to the findings, it can be concluded that self-differentiation training was effective on psychosomatic symptoms and cognitive emotion regulation in nurses.

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