

Effectiveness of Emotion Efficacy Therapy on Internet Dependency and Negative Cognitive Emotion Regulation Strategies among Students Addicted to Internet: A Quasi-Experimental Design

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Abstract

Background & Aims: Internet addiction is one of the most important problems of the human societies. The aim of this study was to investigate the effectiveness of emotion efficacy therapy on reducing internet dependency and negative cognitive emotion regulation strategies (self-blame, other-blame, rumination, and catastrophizing) among students addicted to internet.

Methods & Materials: The research was quasi-experimental design with pre- and post-test and control group. The study population included all male students of state technical schools addicted to internet in year 2020 in Tabriz, Iran. In order to select the sample, one district from five educational districts was chosen and then a technical school was selected randomly. After that, the students possessing the inclusion criteria to the research were screened by Young's Internet Addiction Test (YIAT20) and then 40 students were randomly assigned to either experimental or control group, each group consisting of 20 students. The experimental group received eight session emotion efficacy therapy whereas the control group received no intervention. For the collection of data, Young's Internet Addiction Test (YIAT20) and Cognitive Emotion Regulation Questionnaire (CERQ) were used. The collected data were analyzed using multivariate analysis of covariance.

Results: The results from the comparison of the post-tests of the groups indicated that scores of internet dependency ($p < 0.01$), and negative cognitive emotion regulation strategies (self-blame ($p < 0.01$), other-blame ($p < 0.01$), rumination ($p < 0.01$) and catastrophizing ($p < 0.01$)) of experimental and control groups differed significantly. The analysis of data showed that emotion efficacy therapy reduced internet dependency and negative cognitive emotion regulation strategies (self-blame, other-blame, rumination and catastrophizing) among students addicted to internet.

Conclusion: Emotion efficacy therapy is one of the most recently developed approaches used to treat different psychological disorders. Taking into account the results of the present study, emotion efficacy therapy can be used to treat internet dependency and negative and maladaptive emotion regulation strategies such as self-blame, other-blame, rumination, and catastrophizing.

Keywords: Emotion efficacy therapy, Internet dependency, Negative cognitive emotion regulation strategies, Students

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Introduction

Internet has become prevalent and has expanded extensively in recent years. Nowadays, the possibilities provided by internet to individuals have improved and internet has begun to play an intermediary role in organizing many activities in daily life (1). In Iran, like other societies, individuals using the internet and the multiplicity of purposes for which it is used have greatly increased. In spite of the fact that internet possesses great merits and advantages, its excessive use leads into work-related problems, social life and sexual pursuits, financial drawbacks, academic and educational performance and other contradictory consequences (2).

Studies show that one of the most important reasons for excessive internet use and internet addiction is difficulty in regulating emotions (3). Although emotions are biologically based phenomena, people can control and manage the expression of their emotions (4). Of the nine cognitive emotion regulation strategies, four negative ones i.e. rumination, catastrophizing, self-blame, and other-blame are mostly related to dysfunctional regulation of emotions and psychological disorders like anxiety, bipolar disorder, borderline personality disorder, eating disorder, depression, and drug and internet addiction (1, 5-7). Negative and dysfunctional emotion regulation strategies such as rumination, catastrophizing, self-blame, and other-blame which arise from inability to efficiently cope with emotions and their ineffective management play a vital role in internet dependency and social media addiction (7). Pressed by the peers to use the internet, the individual loses his/her ability to control and manage emotions and gradually develops negative cognitive emotion regulation strategies (rumination, catastrophizing, self-blame, and other-blame) when confronted with difficult situations (8).

With respect to the findings of the related studies, it is claimed that a major portion of etiological factors

contributing to internet addiction includes mood and emotional influences such as stress, anxiety, and depression. On the other hand, dysfunction in regulating emotions exerts an extra burden on these tendencies. Consequently, in recent years, in order to treat internet addiction and dysfunctional emotion regulation, attention has been diverted to approaches that try to control and manage emotions. One of these approaches is emotion efficacy therapy (EET). EET is of paramount significance in treating lots of psychological vulnerabilities (9). Emotion efficacy refers to the individual's ability to experience and respond to all emotions which are suitable to the context and compatible with the person's values. In other words, emotional efficacy includes the individual's opinion about his/her ability to lead his/her emotional life. The higher the emotional efficacy of the people, the better they can experience and regulate their problematic emotions and express their values (9).

EET as a kind of transdiagnostic therapy, originated from context-based theory and practice, integrates findings of emotional sciences, traditional and third generation cognitive behavior therapy and learning theory. EET is a sort of mindfulness-based therapy (10) in which the patients instead of trying to control distress, accept it and are committed to act according to their values. Several studies have revealed that EET is effective in reducing psychological and emotional distresses arisen from internet addiction like depression and anxiety (9, 11), rumination (12, 13), suppression of thought (14), and drug and alcohol addiction (15).

Taking into account what was mentioned above, the present study aimed to answer the question of whether EET was effective in reducing internet dependency and negative cognitive emotion regulation strategies (self-blame, other-blame, rumination and catastrophizing) among students addicted to internet.

Methods and Materials

Regarding the design, this study is quasi-experimental, using pre- and post-test with control group design. The statistical population included all male internet addicted students of state technical schools of Tabriz City in the academic year 2019-20. In quasi-experimental designs, it is recommended that each experimental and control group consist of at least 15 subjects (16). With this in mind, to pick the sample an educational zone and then a state male technical school were randomly selected. Later the students possessing the inclusion criteria to the study were screened and among them 40 subjects were selected randomly, were assigned randomly into experimental and control groups, each group consisting of 20 subjects. Inclusion criteria to the study were as follow: addiction to internet, 17-19 years old, not receiving any kind of psychological education or treatment, not taking any psychiatric medicine and informed consent of the subjects and their parents to take part in the study. Exclusion criteria were: being afflicted with severe psychological disorders during intervention, unwillingness to continue to cooperate with the researcher and being absent for more than two sessions.

Measurement Instruments:

The Cognitive Emotion Regulation Questionnaire (CERQ): This questionnaire was developed by Garnefski and Kraaij and it is one of the most salient instruments ever used to measure various cognitive emotion regulation strategies (17). The CERQ is a 36-item questionnaire, consisting of the following nine conceptually distinct subscales, namely, *self-blame*, *other-blame*, *ruminating*, *catastrophizing*, *reappraisal*, *acceptance*, *putting into perspective*, *positive refocusing*, and *refocus on planning* and each referring to what someone thinks after the experience of threatening or stressful events (17). Cognitive emotion regulation strategies were measured on a 5-point Likert scale ranging from 1 (never) to 5 (always). Each

subscale consisted of 4 items. Individual subscale scores were obtained by summing the scores belonging to the particular subscale or cognitive emotion regulation strategy (ranging from 4 to 20). The higher the subscale score, the more the specific cognitive strategy is used. Studies on cognitive emotion regulation strategies have demonstrated that all subscales have good internal consistencies. Alpha coefficients varying from 0.70 to 0.80 have been reported for this questionnaire. In Iranian culture, Alpha coefficient of 0.82 has been reported for the cognitive emotion regulation questionnaire (18).

Young's Diagnostic Questionnaire (YDQ): Young (19) developed the Young's Diagnostic Questionnaire (YDQ) to assess Internet Addiction Disorder (IAD). The proposed Young's Internet Addiction Scale includes the following characteristics: It is a 20-item questionnaire, answered in a five-point Likert scale. It covers the degree to which their internet use affects their daily routine, social life, productivity, sleeping pattern, and feelings. The minimum score is 20 and maximum is 100; the higher the score, the greater the problems internet use causes. Young claims that a score of 20-39 shows average usage, a score of 40-69 indicates frequent problems, and a score of 70-100 signifies major problems. Widyanto and Griffiths (20) performed the most comprehensive study on the psychometric properties of YDQ, in which the factor analysis of YDQ showed six factors explaining 68% of variance: salience, anticipation, lack of control, neglecting work, excessive use, and neglecting social life. These factors indicated good internal consistency and concurrent validity, and salience demonstrated the highest reliability i.e. 0.82. The six factors were all correlated with each other, ranging from $r=0.226$ to $r=0.62$. Young's Diagnostic Questionnaire (YDQ) was standardized among the Iranian culture (21). Alpha coefficient was found to be 0.89. Also, aggregate validity coefficient and construct validity based on convergent validity were high. Overall, the Persian

version of YDQ demonstrates satisfactory psychometric properties among Iranian population.

Results

After selecting the subjects, to obtain the pre-test scores, the Cognitive Emotion Regulation Questionnaire (CERQ) and Young's Diagnostic Questionnaire (YDQ) were used. Then, the experimental group underwent

treatment for eight weeks, each week consisting of a session of 90 minutes, using EET. The control group received no intervention during this period. Following the treatment, to obtain the post-test scores, the subjects in both groups were evaluated again using the same questionnaires. A session overview of EET (9) is given in Table 1.

Table 1. The session overview for group therapy

Session	Content of sessions mm
1	Emotion Awareness
2	Mindful Acceptance: Emotion Surfing
3	Values-Based Action: Part 1
4	Values-Based Action: Part 2
5	Mindful Coping: Relaxation and Self-Soothing
6	Mindful Coping: Coping thoughts and Radical Acceptance
7	Mindful Coping: Distraction and Time-Out
8	Consolidating, Troubleshooting, and Wrap-Up

Results

The descriptive statistics containing means and standard deviations of the variables of the study are shown in Table 2.

Table 2. Descriptive statistics of the variables in experimental and control groups

Group	variables	Pre-test		Post-test		N
		M	SD	M	SD	
Experimental	Internet dependency	59.85	18.47	40.75	10.73	20
	Self-blame	15.45	2.72	9.85	2.11	20
	Other-blame	14.60	2.41	9.40	1.75	20
	Rumination	15.40	2.72	9.55	1.93	20
	Catastrophizing	15.25	2.90	9.75	1.99	20
Control	Internet dependency	59.25	15.77	59.00	15.92	20
	Self-blame	12.05	1.96	11.85	2.21	20
	Other-blame	11.40	1.79	11.25	2.29	20
	Rumination	11.85	2.16	11.90	2.15	20
	Catastrophizing	12.05	1.90	11.85	2.25	20

The contents of Table 2 indicate that EET is effective in reducing mean scores of post-test in experimental group while there is no significant difference between pre- and post-test in control group.

Furthermore, to test the hypotheses in this study analysis of covariance (ANCOVA) was used. To do this, assumptions of ANCOVA were investigated. In order to assess the normality of the distribution of pre- and post-test scores, Kolmogorov-Smirnov test was used, the results of which showed that the distribution of variables in the sample is normal. On the other hand, to assess homogeneity of error variance of dependent variables, Levene's test was used. The results confirmed the homoscedasticity assumption of research variables.

Also, to assess homogeneity of regression slope, analysis of variance of interaction effect was used, the result of which confirmed the assumptions of homogeneity of regression slope. Moreover, to assess the assumptions of normal correlation and homogeneity of variance-covariance matrices of the dependent variables, Bartlett's and Box's M tests were used respectively; and the results showed that both assumptions have been met. Furthermore, the linearity of relations between the dependent variables was attested. With the verification of the above mentioned assumptions, the analysis of covariance became possible. The results of multivariate analysis of covariance are presented in Table 4.

Table 3. Summary of ANCOVA of effectiveness of EET on dependent variables

Dependent Variables	SS	df	MS	F	P-value	η^2
Internet dependency	1145.27	1	1145.27	52.13	0.0001	0.61
Self-blame	78.67	1	78.67	82.76	0.0001	0.71
Other-blame	66.05	1	66.05	33.59	0.0001	0.50
Rumination	88.27	1	88.27	85.06	0.0001	0.72
Catastrophizing	54.19	1	54.19	33.50	0.0001	0.50

$p < 0.05$

Findings of Table 3 showed that by controlling the effects of pre-test, EET is significantly effective in reducing internet dependency and negative cognitive emotion regulation strategies (self-blame, other-blame, rumination, and catastrophizing), since the amounts of calculated F is significantly meaningful at $p < 0.05$ and according to the results of Table 2 this difference is for the benefit of experimental group (EET). Therefore, the answer to the question of whether EET is effective in reducing internet dependency and negative cognitive emotion regulation strategies (self-blame, other-blame, rumination, and catastrophizing), is positive.

Discussion

The aim of the present study was to determine the effectiveness of EET on reducing internet dependency and negative cognitive emotion regulation strategies (self-blame, other-blame, rumination, and catastrophizing) among students addicted to internet. The analysis of data showed that EET reduces internet dependency and negative cognitive emotion regulation strategies i.e. self-blame, other-blame, rumination, and catastrophizing and there are significant differences between the means of internet dependency, self-blame, other-blame, rumination, and catastrophizing in experimental and control groups. These findings are consistent with the findings of previous studies (3, 7, 9-15). Regarding the findings, it is claimed that individuals

holding psychological vulnerabilities such as internet addiction and negative cognitive emotion regulation strategies suffer from emotional dysregulations and maladjustments. Moreover, these individuals do not clearly realize their emotional experiences, are not able to tolerate the problematic experiences, have difficulty opting for choices consistent with their values and cannot regulate their emotions. Gradually, these vulnerabilities and maladaptive behavioral patterns contribute to chronic emotional dysregulations which, in turn, lead to developing symptoms of psychopathologies and behavioral addictions such as internet addiction. In fact, these maladaptive and destructive behavioral patterns get so deep-rooted that they turn into continuous ones, thus their alteration becomes very difficult and the individual feels trapped in isolation and hopelessness (9).

In EET, the continuation of maladaptive behavioral patterns results from emotional dysregulation. In this model, emotional dysregulation is defined as a wide spectrum of thoughts, feelings, sensations, and urges which are incompatible with the context. In this regard, since emotional dysregulation always results in behavioral dysregulation, it is considered problematic. Skills utilized in EET target transdiagnostic triggers of low emotional efficacy and decreasing emotional dysregulation and fundamental symptoms of rumination, catastrophizing, self-blame and other-blame, try to focus on enhancing tolerance of distress and reduction of emotion avoidance, so as to lead to new adaptations. In this approach, patients are helped to use awareness of emotion, mindful acceptance, values-based action, mindful coping, and practice of exposure-based skills to develop their choices in the face of difficult emotions. Also, instead of reacting inefficiently and giving ineffective responses contextually, they are aided to establish new relationships with their emotions (9, 22).

Based on the results of the present study it can be concluded that EET is effective in reducing internet dependency and negative cognitive emotion regulation strategies (self-blame, other-blame, rumination, and catastrophizing) among students addicted to internet. The implication is that clinicians can prioritize EET in dealing with and treating psychological distresses such as internet dependency and negative cognitive emotion regulation strategies.

This study like any other study had its limitations which should be considered in generalizing the results. All subjects were chosen from male state technical schools of Tabriz City in the academic year 2019-20, so it should be taken care of in generalizing the results of this study to other similar studies. Researchers can carry out this research among female high school students, university students, and even government employees. Furthermore, it is recommended that the effectiveness of this therapy be compared and contrasted with other psychotherapeutic approaches and its different dimensions become clear in relation to other approaches.

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