

Effectiveness of Emotional Intelligence Training on Alexithymia of Male Students

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Background: Emotions are part of the human nature and are considered as one the necessities of human life. However, if left uncontrolled or unregulated, they will create problems for the individual and others.

Objectives: The aim of the present study was to investigate the effect of emotional intelligence training on alexithymia of male students with high levels of alexithymia.

Materials and Methods: The statistical population consisted of undergraduate male students enrolled at Shahid Chamran University of Ahvaz between 2012 and 2013. Samples were selected via two stages by using the random cluster multistage method. The first stage involved distributing and collecting 623 measures of alexithymia (TAS-20) in the form of a multi-stage cluster between students and also selecting 40 individuals from those with scores of a higher standard deviation than the average in this scale. The second stage consisted of selecting 30 individuals who possessed the criteria for entering the groups. The test group after eight training sessions (two times a week) and the control group without any intervention simultaneously completed the post-test. For data analysis, analysis of univariate covariance (ANCOVA) was used.

Results: Statistical analysis showed that emotional intelligence training affected male students with alexithymia ($\eta^2 = 0.77$ and $P < 0.0001$ and $F = 92.27$) and the mean score of emotional alexithymia related to the experimental group reduced from 67.80 to 51.60.

Conclusions: According to these findings, emotional intelligence can be taught in order to reduce the level of students' alexithymia and improve emotional problems in individuals with high alexithymia.

Keywords: Alexithymia; Emotional Intelligence; Students

1. Background

Emotions are a part of human nature and are considered as the necessities of life; in other words, human beings have come into this world with evolved and advanced emotional structures. However, in some individuals, this evolved and improved structure does not play its role properly. For example, people with alexithymia suffer from low emotional self-consciousness, are confused about their feelings and do not have any idea about their emotions. Furthermore, when it comes to understanding the feelings of others they are incapable to do so, and whenever alexithymics hear the feelings of others about themselves they become confused (1). Thus, the inability of cognitive processing of emotional information and regulation of emotions is called alexithymia (2). Alexithymia is a multifaceted construct consisting of the difficulty in identifying feelings and distinguishing physical agitation from feelings associated with emotional arousal, difficulty in describing feelings to others, the limited power of visualization (lack of imagination) and objective cognitive style (non-visual), and pragmatic and reality-based or objective thinking (3). People suffering from this disorder exaggerate their normal physical

senses, misinterpret their physical symptoms, show their emotional distress through somatic complaints and look for a cure for physical symptoms in their remedial measures (4). Alexithymia is a common phenomenon in various populations. For example, research has shown that 23% of its prevalence is in the general population and 17% of its prevalence is among students (5). Another study on 1285 individuals in Finland showed that the prevalence of this disorder is 13% with an estimate of 17% for men and 10% for women (6).

Other studies have shown that high levels of alexithymia is connected with a wide range of psychiatric problems such as inappropriate eating habits, inactivity, alcoholism and drug abuse (7), anxiety (8, 9), depression, somatization disorder (10), neuroticism (11), schizophrenia (12) and eating disorders (13). Also, according to the results, about 55% of patients with high blood pressure had alexithymia (14). In addition, and above all, the main problem for people with alexithymia, (according to the definition) is the identification and regulation of their feelings and emotions; thus having high scores for alexithymia are associated with poor emotional regulation

skills (15). Also alexithymia is closely related to emotional intelligence (16). On the other hand, a research by Ghiabi and Besharat (2011) showed that emotional intelligence may work as a predictor of alexithymia (17).

In fact, emotional intelligence is non-cognitive intelligence and comes from social intelligence first identified in 1920 by Thorndike (18). Emotional intelligence is the ability to recognize the individual's own and others' emotions and be capable of emotional regulation in social situations (19). Mayer, Salovey and Caruso (2004) considered emotional intelligence as the ability to recognize the meanings of emotions and their relationships, and being able to solve problems based on these emotions (20). Bar-On and Parker (2000) suggested that emotional intelligence includes several factors, emotional, social and personal abilities, that are influential on our overall ability to cope effectively and actively with the pressures and diverse demands. These capabilities include the ability to perceive our own and others' emotions, establish and maintain intimate relationships with others, express and manage emotions, confirm thoughts and emotions, solve problems effectively, and to have self-control (21). In this respect, on one hand, researchers have stressed the possibility of increasing emotional intelligence (22), and according to research results, emotional intelligence leads to proper processing of information with emotional burden (23). On the other hand, emotional intelligence is negatively related to alexithymia and is predictable by emotional intelligence. Thus people with alexithymia probably have poor emotional intelligence and minimization of these defects seems possible through training. Many studies have been carried out for to address this issue. Nikoogoftar (2009) in a research titled "emotional intelligence training, alexithymia, and general health and academic achievement among high school girls" showed that emotional intelligence training reduced alexithymia in female students (24). Also Besharat et al. (2008) in a study titled "emotional intelligence training, emotional disorder and interpersonal problems" have shown that emotional intelligence has a significant negative correlation with alexithymia (25). In another research, Besharat et al. (2010) compared gifted students with normal students according to their alexithymia and emotional intelligence. These researchers demonstrated a negative and significant relationship between emotional intelligence and alexithymia in both gifted and normal students (26).

2. Objectives

This study aimed to assess the efficacy of emotional intelligence training on male students with high levels of alexithymia.

3. Materials and Methods

This study was a field experimental project that was based on the pre-test and post-test method, with a con-

trol group for comparison. Statistical population of this study consisted of all undergraduate male students who had enrolled at Shahid Chamran University of Ahvaz during 2012 and 2013, which summed up to 4041 students according to the Statistics and Computing Center of the University. Random multi-stage sampling method was used for selection of samples. The initial prototype consisted of 600 individuals who were selected on the basis mentioned below:

First of all, out of 11 faculties, five faculties, including Engineering, Economics and Social Sciences, Agriculture, Arts and Sciences were randomly selected. Then four groups were selected from each faculty and four classes were randomly selected from each group. Toronto Alexithymia Scale (TAS-20) was distributed to male students, who were persuaded to participate, and completed and collected in the presence of the researcher. From the 623 students who answered the questionnaire, 600 were finally evaluable. Then 40 individuals with a higher score of a standard deviation above the mean, on the Toronto alexithymia scale, were selected out of the initial 600 individuals. Students were convinced and informed of the classified nature of the research data through the telephone. After a review (40 patients), 30 patients who met the entrance criteria were selected. These patients had the following criteria: no history of psychiatric illness (assessed by a psychologist and confirmed by interviewing and inquiring whether the individual had any psychiatric treatment and whether he had been institutionalized in a mental hospital), no experience of certain psychiatric medication as well as the willingness to participate in the training sessions. The individuals were divided randomly (lottery) into two groups and were then randomly assigned to the test group and control group. For data analysis, the SPSS-16 software was used and frequency, mean and standard deviation were applied for the descriptive statistics. Analysis of univariate covariance (ANCOVA) was used for inferential statistics.

3.1. Research Tools

3.1.1. Toronto Alexithymia Scale (TAS-20)

The basic format of this scale includes 26 questions made by Taylor, Ryan and Bagby in 1985 (27), and reviewed and reduced into a 20-question format by Bagby, Taylor and Parker in 1994 (28). Bagby and colleagues (1994) found that TAS-20, the validity test, possesses three structural factors, thus is consistent with the construct of alexithymia. Many studies have also supported these results. In general, the scale has 20 items and measures three subscales on five-pointed spectrum of Likert (1 for "I completely disagree" to 5 for "I strongly agree"); the three subscales include, difficulty in identifying feelings, difficulty in describing feelings, and objective thinking (outward-oriented). Minimum score is thus 20 and maximum is 100. Total score for alexithymia is calcu-

lated by adding the subscales. Questions 4, 10, 18 and 19 are valued in a reverse basis (28). Bagby, Taylor and Parker (1993; Quoted by Muller, Buhner and Ellgring, 2003) considered total scores of 51 and below as non-alexithymic and scores of 61 and above as alexithymic; adding that the greater score means higher and severer cases of alexithymia (29). Bagby and Taylor (1997; Quoted by Karukivi, 2011) also declared 61 as the set cut of point of the scale, so that alexithymics achieve 61 or more (30). Accordingly, this study follows the order just described. Psychometric properties of Toronto Alexithymia Scale-20 have been reviewed and confirmed by numerous studies (25). Ghaseminejad (2011) in a study titled "comparison of anxious sensitivity, negative affect and alexithymia between asthmatic patients and normal people through mental health monitoring in Ahvaz" used this scale and reported its reliability with Cronbach's Alpha; the reliability scores were as follows, for the total score scale, 0.71, difficulty in describing feelings 0.60, difficulties in emotion recognition 0.72 and objective thinking, 0.51 (31). Besharat (2007) investigated concurrent validity of this scale in terms of correlations between the subscales and the scales of the tests, such as emotional intelligence, psychological well-being and psychological distress; the results of their study confirmed the validity of the test. The results showed that there is a significant relationship between the scores on the scale of alexithymia with EI ($P < 0.001$, $r = -0.80$), psychological well-being ($P < 0.001$, $r = -0.78$) and psychological distress ($P < 0.001$, $r = 0.44$). The correlation coefficient between these variables and alexithymia subscales were also significant. Using the results of the affirmative factor analysis, Besharat (2007) also confirmed three factors (difficulty in describing feelings, difficulty in identifying feelings and objective thinking) in the Farsi version of the Toronto-Alexithymia Scale 20 (32).

3.1.2. Description of Training Sessions

Emotional intelligence group training used in this study consisted of eight sessions (two sessions a week, each session lasting for 90 minutes), for the experimental group. Materials and discussions were adopted from the Emotional Intelligence textbook (Goleman, 2000) (21).

3.1.2.1. Session 1

The first session involved the following; welcoming, introduction of members, members being acquainted with each other, introduction to the overall structure of the meeting and rules of entering and leaving the sessions, (timely attendance and active participation in class discussions), contracting, defining and describing emotion and its dimensions and the difference between emotion and feeling, definition of emotional intelligence and how it differs from cognitive or logical intelligence and explicating the importance and necessity of learning and

regulating of emotion.

3.1.2.2. Session 2

The second session involved; identifying brain structures related to emotion and cognition, identifying emotional words, teaching the causes of emotions and their formation processes, teaching how to recognize and adopt an appropriate facial expression, using techniques such as story-telling, using the mirror, posters, and emotionally charged forms in order to observe a face, and finally giving homework (worksheet) related to the session.

3.1.2.3. Session 3

The third session involved; defining and describing emotional self-awareness, providing different ways to increase emotional self-awareness, emotional control (self-restraint), correct and appropriate manner of expressing emotions, re-evaluating of emotion and its efficient use, and finally manner and ways of understanding others' emotions.

3.1.2.4. Session 4

This session involved explaining the difference between hearing and listening and six barriers of listening such as stereotypical listening, teaching listening habit and talent of listening in order to increase learners' empathic ability; definition and explanation of empathy, explaining the origins of empathy and its evolution; teaching communication skills like attention to experiences, feelings and behaviors, and finally initiating a discussion and providing essential tips on empathic responses and ways to improve the quality of these empathic responses.

3.1.2.5. Session 5

The fifth session included a general explanation of emotional problems, explanation of positive and negative types of monologues and their role in solving an emotional problem; explanation of the main steps in solving problems, namely, 1- clear identification and definition of the problem 2- proposing solutions, 3- evaluation of solutions and selection of the most suitable ones, 4- implementation and performance of the solution, 5- defining whether or not the solution is applicable to the problem and, elucidating the point that in many cases it is the individual who causes his/her own emotional problems and the need for self-reform.

3.1.2.6. Session 6

The sixth session involved explanation of situations which lead to ordeals or problems, teaching how to share unpleasant experiences and advantages of sharing, providing training on how to share an unpleasant experience and also how to solve it; teaching how to take the responsibility towards others' speech, thoughts

and feelings as learners themselves expect others to be responsible.

3.1.2.7. Session 7

This session included, defining and describing anger, talking about the usefulness or harm caused by anger, teaching and explaining reasons for continuation of anger and consequent disadvantages; causes of anger and specification of incorrect ways of expressing it such as self-injury, hurting others and etc.; specification of appropriate ways to express anger and suitable strategies to cope with it.

3.1.2.8. Session 8

Finally, the eighth session involved defining and explaining stress, explaining different ways by which people express and manage stress; the inappropriate and harmful nature of some of these methods, such as anger, loneliness, stubbornness, etc.; it was also stated that in some people emotional stress leads to physical problems; teaching how correctly and promptly cope with stress, for example, diaphragmatic breathing, and finally, providing the post-test and subjects' appreciation.

4. Results

Mean age of the experimental group was 20.87 and that of the control group was 20.73. Results approved covariance analysis, identical gradient of regression line ($P = 0.34$ and $F = 0.92$) and Levine requirement ($P = 0.14$ and $F = 2.24$). Thus analysis of univariate covariance (ANCOVA) was provided. In this study, the pre-test score of alexithymia was known as a covariate variable and its impact on post-test scores was controlled by using analysis of covariance.

Mean scores and standard deviation scores for alexithymia of both experimental groups and control groups at pre-test and post-test are shown in Table 1.

As shown in Table 1, the mean scores and standard deviation scores for alexithymia in pre-test were 67.80 ± 6.07 , for experiment group, and 66.00 ± 6.85 for control group; post-test scores for the experiment and control groups were 51.60 ± 7.08 and 66.60 ± 6.90 , respectively. According to the results of Table 1, in the post-test there were differences between the mean scores of alexithymia for the experimental group and control group, meaning that there was a decline in mean emotional alexithymia score for the experimental group and control group from the post-test to the pre-test.

Table 2 shows univariate covariance analysis (ANCOVA) of the mean scores of the experimental group and control group, while controlling for the pre-test.

Results of Table 2 show that the difference between alexithymia scores of participants according to their group was significant. Thus, teaching emotional intelligence improved and reduced alexithymia of students in the experi-

mental group at the post-test. Statistical strength of this study was 1. The statistical power being above 0.8 indicates adequate sample size and acceptable statistical accuracy.

Table 1. Mean and Standard Deviation for Alexithymia of Experimental Groups and Control Groups at Pre-Test and Post-Test ^a

	Groups	
	Control, n = 15	Experiment, n = 15
Pre-test	67.80 ± 6.07	66.00 ± 6.85
Post-test	66.60 ± 6.90	51.60 ± 7.08

^a Values are presented as Mean ± SD.

Table 2. Analysis of Univariate Covariance (ANCOVA) on the Mean Scores of the Experimental Group and Control Group, While Controlling for the Pre-Test

Source	Sum of Squares	F	Mean Squares	F	P	Partial Eta Squared
Pre-test	787.67	1	787.67	36.44	0.000	0.57
Group	1994.21	1	1994.21	92.27	0.000	0.77
Error	583.51	27	21.61			

5. Discussion

The aim of the present study was to investigate the effect of emotional intelligence training on alexithymia of male students with high levels of alexithymia. Covariance analysis showed that the experimental group had significantly decreased scores of alexithymia for the post-test. Therefore, we can conclude that emotional intelligence training is effective for reducing students' alexithymia. The findings of this study are consistent with the results of Nikoogoftar (2009) as his research on high school girls showed that emotional intelligence training helped reduce alexithymia among groups of participants, and covariance analysis indicated that the difference was in favor of the experimental group. In other words, scores for alexithymia of participants in the experimental group reduced significantly as a result of emotional intelligence training which shows that emotional intelligence training can reduce and adjust alexithymia (24). In explaining these findings, it can be stated that alexithymia has three aspects, including difficulty in identifying feelings, difficulty in describing feelings and objective thinking (outward-oriented) and also according to available definitions, alexithymics have difficulty identifying and regulating their emotions and those of others. In a broader sense, the main problem of these people is in cognitive processing of emotions and regulation of emotions. Thus, emotional training through learning skills, such as identification of emotions, correct specification and designation of emotions, identifying different aspects of emotional manifestation, expansion of emotional self-awareness, correct emotional expression, restraint and emotional control and increased empathy can lead

to regulate alexithymia. This matter brings about reduction in their scale scores of emotional reticence. The findings of this study are consistent with research or the findings by Grieve and Mahar (2010), showing that alexithymia has a significant positive correlation with poor emotional skills (33). This means that emotional intelligence training along development of emotional skills can reduce the intensity of the mentioned relationships and lead to the adjustment and improvement of emotional reticence. Furthermore, the findings of this study are consistent with the results of Parker et al. (2001) and Ghiabi and Besharat (2011), which showed a significant negative relationship between emotional intelligence and alexithymia ($r = -0.74$ and $P < 0.001$) (16, 17). Considering the strong and significant relationship between emotional intelligence and alexithymia, it can be assumed that emotional learning leads to improvement of emotional skills of alexithymic individuals and also reduces the level of their alexithymia. In this regard, Nishimura and colleagues (2009) found that interpersonal difficulties in identifying and describing feelings are associated with disability in empathy (34). Thus, emotional intelligence training through teaching how to identify and describe emotions and emotional consciousness will overcome personal problems and provide a way to improve empathy. The findings of this study are compatible with the research results by Neumann, Zupan, Malec and Hammond (2013), which showed that people who tend to think about avoiding emotions (or objective thinking) are more likely to experience problems associated with emotion recognition and accepting or assuming emotions and opinions of others (35). This means that having objective form of thinking (a characteristic of people with high alexithymia) causes problems in recognition and understanding of others' emotions. Emotional intelligence training through teaching emotional skills of emotional self-awareness and empathy can modify and improve these issues.

In general, and according to the findings, it can be concluded that gradual emotional intelligence training can reduce and modify emotional disorders and cognitive problems of students with high level of alexithymia and also pave the way for their recovery. Regarding the effectiveness of emotional intelligence training in the improvement and adjustment of individuals with high alexithymia, this therapeutic strategy may work in community health centers and psychological counseling clinics.

Limitations of this study are due to the sample and statistical population, which solely comprised of students, thus the generalizing of the results should be done with caution. The sample of this study included only male students; therefore a generalization of the results to female students should be done with caution. Therefore, it is recommended that in future research, non-students and female students should be part of the sample population and it is also recommended to repeat the research

in other cities.

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References

1. Parsa N. *Emotional Intelligence*. Tehran: Roshd publication; 2012.
2. Taylor GJ. Recent developments in alexithymia theory and research. *Can J Psychiatry*. 2000;**45**(2):134-42.
3. Sifneos PE. Alexithymia, clinical issues, politics and crime. *Psychother Psychosom*. 2000;**69**(3):113-6.
4. Taylor GJ, Parker JD, Bagby RM, Acklin MW. Alexithymia and somatic complaints in psychiatric out-patients. *J Psychosom Res*. 1992;**36**(5):417-24.
5. Loas G, Fremaux D, Otmani O, Verrier A. [Prevalence of alexithymia in a general population. Study in 183 "normal" subjects and in 263 students]. *Ann Med Psychol (Paris)*. 1995;**153**(5):355-7.
6. Salminen JK, Saarijarvi S, Aarela E, Toikka T, Kauhanen J. Prevalence of alexithymia and its association with sociodemographic variables in the general population of Finland. *J Psychosom Res*. 1999;**46**(1):75-82.
7. Helmers KF, Mente A. Alexithymia and health behaviors in healthy male volunteers. *J Psychosom Res*. 1999;**47**(6):635-45.
8. Espina Eizaguirre A, Ortego Saenz de Cabezon A, Ochoa de Alda I, Joaristi Olariaga L, Juaniz M. Alexithymia and its relationships with anxiety and depression in eating disorders. *Pers Individ Dif*. 2004;**36**(2):321-31.
9. Tselebis A, Kosmas E, Bratis D, Moussas G, Karkanas A, Ilias I, et al. Prevalence of alexithymia and its association with anxiety and depression in a sample of Greek chronic obstructive pulmonary disease (COPD) outpatients. *Ann Gen Psychiatry*. 2010;**9**:16.
10. Modestin J, Furrer R, Malti T. Study on alexithymia in adult non-patients. *J Psychosom Res*. 2004;**56**(6):707-9.
11. Espina A. Alexithymia in parents of daughters with eating disorders: its relationships with psychopathological and personality variables. *J Psychosom Res*. 2003;**55**(6):553-60.
12. Cedro A, Kokoszka A, Popiel A, Narkiewicz-Jodko W. Alexithymia in schizophrenia: an exploratory study. *Psychol Rep*. 2001;**89**(1):95-8.
13. Nowakowski ME, McFarlane T, Cassin S. Alexithymia and eating disorders: a critical review of the literature. *J Eat Disord*. 2013;**1**:21.
14. Todarello O, Taylor GJ, Parker JD, Fanelli M. Alexithymia in essential hypertensive and psychiatric outpatients: a comparative study. *J Psychosom Res*. 1995;**39**(8):987-94.
15. Stasiewicz PR, Bradizza CM, Gudleski GD, Coffey SF, Schlauch RC, Bailey ST, et al. The relationship of alexithymia to emotional dysregulation within an alcohol dependent treatment sample. *Addict Behav*. 2012;**37**(4):469-76.
16. Parker JDA, Taylor GJ, Bagby RM. The relationship between emotional intelligence and alexithymia. *Pers Individ dif*. 2001;**30**(1):107-15.
17. Ghiabi B, Besharat MA. Emotional intelligence, alexithymia, and interpersonal problems. *Procedia Soc Behav Sci*. 2011;**30**:98-102.
18. Ariasadr Z, Akbarzadeh N, Yazdi SM. Comparison of emotional intelligence components in addicted men and non-addicted and presentation of educational program according to emotional intelligence components in addicts referred to withdrawal of addiction centers in khoramabad city. *J Psychol Stud*. 2010;**6**(3):1-17.
19. Koczwara A, Bullock T. What is emotional intelligence at work. *GP*. 2009;**2**(5):47-50.
20. Mayer JD, Salovey P, Caruso DR. A Further Consideration of the Issues of Emotional Intelligence. *Psychol Inq*. 2004;**15**(3):249-55.
21. Bar-On R, Parker JDA, Goleman D. *The Handbook of Emotional Intel-*

- ligence: The Theory and Practice of Development, Evaluation, Education, and Application—at Home, School, and in the Workplace.*: Wiley; 2000.
22. Schutte NS, Malouff JM, Thorsteinsson EB. Increasing emotional intelligence through training: Current status and future directions. *Int J Emotion Edu.* 2013;**5**:56–72.
 23. Beyrami M. [The survey effect of emotional intelligence training on assertiveness, self-efficacy and mental health of students. *Practical J.* 2008;**3**(11):25–42.
 24. Nikoogoftar M. Emotional intelligence training, alexithymia, general health, and academic achievement. *J Iran Psychol.* 2009;**5**(19):187–98.
 25. Besharat MA, Zebardast O, Nadali H, Salehi M. Emotional intelligence, alexithymia and interpersonal problems. *J Psychol Edu.* 2008;**38**(2):101–23.
 26. Besharat MA, Karimi M, Ghorbani N, Rahiminejad A. Comparison of alexithymia and emotional intelligence in gifted and non-gifted high school students. *J Adv Cognitive Sci.* 2010;**11**(4):18–28.
 27. Taylor GJ, Ryan D, Bagby RM. Toward the development of a new self-report alexithymia scale. *Psychother Psychosom.* 1985;**44**(4):191–9.
 28. Bagby RM, Taylor GJ, Parker JD. The Twenty-item Toronto Alexithymia Scale-II. Convergent, discriminant, and concurrent validity. *J Psychosom Res.* 1994;**38**(1):33–40.
 29. Muller J, Buhner M, Ellgring H. Is there a reliable factorial structure in the 20-item Toronto Alexithymia Scale? A comparison of factor models in clinical and normal adult samples. *J Psychosom Res.* 2003;**55**(6):561–8.
 30. Karukivi M. . *Associations Between alexithymia and mental well-being in adolescents[dissertation]*: University of Turku; 2011.
 31. Ghaseminejad MA. . *The comparison of anxiety sensitivity, negative affectivity and alexithymia in asthma patients with normal people by controlling mental health in Ahvaz city[dissertation]*: Shahid Chamran University; 2011.
 32. Besharat MA. Reliability and factorial validity of a Farsi version of the 20-item Toronto Alexithymia Scale with a sample of Iranian students. *Psychol Rep.* 2007;**101**(1):209–20.
 33. Grieve R, Mahar D. The emotional manipulation–psychopathy nexus: Relationships with emotional intelligence, alexithymia and ethical position. *Pers Indiv Dif.* 2010;**48**(8):945–50.
 34. Nishimura H, Komaki G, Igarashi T, Moriguchi Y, Kajiwara S, Akasaka T. Validity issues in the assessment of alexithymia related to the developmental stages of emotional cognition and language. *Biopsychosoc Med.* 2009;**3**:12.
 35. Neumann D, Zupan B, Malec JF, Hammond F. Relationships between alexithymia, affect recognition, and empathy after traumatic brain injury. *J Head Trauma Rehabil.* 2014;**29**(1):E18–27.