

Original Article

Comparing cognitive–emotional flexibility and death anxiety in people with and without traumatic experience

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Abstract

The present study aimed to compare the cognitive–emotional flexibility and death anxiety in individuals with and without traumatic experience. It is a causal-comparative study. The population of this research, including all individuals with traumatic experience who had referred to psychiatric clinics and Ardabil Isar psychiatric hospital during first half of year 2020, were selected by purposeful sampling. It included 20 individuals as well as another group of 20 as a control group who were selected by convenient sampling. Acceptance and Practice Questionnaire, Emotional Flexibility Questionnaire and Templar Death Anxiety Scale were employed in order to collect data and the obtained data were analyzed through multivariate analysis of variance using SPSS software, Version 22. The results demonstrated that mean scores of cognitive–emotional flexibility in individuals with traumatic experience were lower than the control group while the mean scores of death anxiety of people with traumatic experience were higher than them ($p < .01$). The results demonstrated the clearance of cognitive–emotional flexibility and death anxiety in individuals with traumatic experience.

Keywords

Cognitive flexibility
Death anxiety
Emotional flexibility
Trauma

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Introduction

Accidents are considered as one of the most unfortunate problems in the subject of present community health, and the death resulted of which is regarded as one of the main reasons of human mortality and the first element of fatality in individuals below 45 years old (Alison, Dayan, Leone, Fraisse, & Carine, 2020). In most cases, confronting and experiencing counterproductive events causes traumatic injuries. One of the most current traumatic injuries is post-traumatic stress disorder. According to Diagnostic and Statistical Manual of Mental Disorders (5th Edition), this disorder is a stress–dependent

anxiety disorder which can occur following one or more traumatic experiences (America Psychiatric Association, 2013). This kind of disorder is characterized by four clusters of symptoms including: (1) inconveniences, (2) avoidance, (3) negative alterations in cognitive and character, and (4) notable alterations in excitation and reactivity (American Psychiatric Association, 2013). Therefore, the negative effect of the disorder on the family and professional extents causes individuals' life quality and cognitive and psychological flexibility to be reduced. Individuals' flexibility has a key role in there pathology emergence and social performances (Luthar, 1993). Flexibility makes individuals have affective and proper

responses to stresses, challenges and other social and emotional problems. An individuals' capability for changing the cognitive sets in order to adjusting to variable environmental stimulants is the main factor for providing the cognitive flexibility definitions (Dennis & Wal, 2010). Some researchers have defined cognitive flexibility as individual's measurement from conditions' controllability which can be shifted in various situations (Gan, Liu & Zhang, 2004, Zong, Cao, Cao, Shi & Wang, 2010).

Affective flexibility is defined as individual's capacity for performing some situation-dependent exciting responses to positive as well as negative events during his life (Gupta & Bonanno, 2011). People with affective flexibility can ask for help while being in negative mood; and so, when they are in positive mood, they can be understood by others who are surrounding them and influenced by their positive excitements (Teymoorpour, Akbari & Hasani, 2019). A person with affective flexibility knows when he must produce positive exciting and when he should avoid it or when he can express or oppress it (Gupta & Bonanno, 2011). Affective flexibility is related to a broad extent of emotional disorders, particularly depression and anxiety disorders (Aldao Sheppes & Gross, 2015; Burton & Bonanno, 2013). Psychological flexibility can enhance the capability of altering as well as preserving the behavior for serving important and valuable goals of life (Herbert, Forman, Kaye, Gershkovich & Goetter, 2018). In their study, Daneshvar, Basharpour and Sharifi (2020) demonstrated that compared to people without traumatic experience, individuals with the injuries have less cognitive flexibility. Dick et al. (2014) and Ziv, Naomi, Nimrod, Roee and Nili (2018) found in their study that increasing cognitive flexibility is accompanied with decreasing PTSD symptoms. Also, Caldwell et al. (2015) found that there is a relationship among cognitive controlling, anxiety coherency and severity of past traumatic experience and cognitive-psychological flexibility.

Additionally, occurrence of traumatic experiences, regarding their severities, can lead to appearing of anxiety and fear of death in individuals. Actually, death anxiety is an abnormal and dreadful fear of death which can be defined by such emotions as fear of death or concerning about dying process or post-death events (Rice, 2009). According Abdel-Khalek and Lester (2006), "Death Anxiety" is a term which is used for illustrating death-awareness. This is a kind of anxiety which is experienced by live humans and can affect individual's health, especially mental health (Hoeltherhoff, 2010). The results obtained in Seyed Ahadi and Marani's research (2018) demonstrated that there is a meaningful correlation

between death anxiety and traumatic experiences. Also, Moling (2019) reported that there is a meaningful relationship between death anxiety and bad experiences. Furthermore, the results of a study by Jafarzadeh Dashbolagh et al. (2020) showed that older people with terminal experience have more health anxiety.

In sum, regarding the inevitability aspect of traumatic experiences, our research can be helpful for people with this kind of experience. On the other hand, through by characterizing the factors influent on the disorder, some approaches can be suggested to be employed by psychologists and consultants in centers on individuals with traumatic experiences. Accordingly, the present study has compared cognitive-psychological flexibility and death anxiety in people with and without traumatic experiences.

Method

Participants

The research was completed by use of causal-comparative method (case-control study). The population of the study included all individuals with traumatic experience who had referred to psychiatric Clinics and Isar psychiatric hospital located in Ardabil, during the first half of 2020. Employing purposeful sampling and regarding entering as well as exiting conditions, 20 subjects were selected (entering standards included having traumatic experience and PTSD disorder according to specialist's diagnosis, having at least primary education for filling the questionnaires, not suffering another acute psychiatric disorder, and exiting standard included hospital admission during the research period. Another 20 individuals were selected by the use of availability sampling (through relative matching of age, gender and education). Respecting to country's sanitary conditions (prevalence of Corona Virus), all questionnaires were completed in person following the health protocol, in order to perform data-collection. And finally, the questionnaire was collected from both groups and the data was analyzed using the SPSS software by multivariate analysis of variance.

Instrumentation

Acceptance and Practice Questionnaire (AAQ-II)

This questionnaire is a self-assessment tool which is designed for evaluating psychiatric flexibility (Hayse et al., 2004). The first version of the questionnaire was designed by Hayse and Streusel (2004). Its second version, AAQ-II, was developed to solve the first version's problems. It is a 10-item instrument which demonstrated a good validity ($\alpha=0.87$) and reliability ($r =$

0.80). High scores of AA-II are predicted as mental health. Cronbach's alpha coefficient for this instrument was calculated as ($\alpha = 0.41$) in [Izadi's study \(2013\)](#) on patients with OCD. Higher scores obtained in this questionnaire present lower psychiatric flexibility as well as higher experimental avoidance. The scales of this study are interpreted inversely, so higher scores represent higher psychiatric flexibility ([Hayes et al., 2004](#)).

Emotional Flexibility Questionnaire

This is a short self-report instrument with 20 items designed by [Taghizadeh and Mohebbipour \(2017\)](#). Its indicators are evaluated and the responses are measured according to four-point Linkert scale from 1 (very low) to 4 (very high). The scores of this scale range from 20 to 80. This scale's cut-off point is 50, and the scores above which are considered as good and the ones under are regarded as poor. In their study, [Taghizadeh and Mohebbipour \(2017\)](#) considered psychometric factors of this questionnaire and its face validity was approved by five psychologists. In order to evaluate its reliability, it was run on 54 Payam-e-Nour B.A. and M.A. students. Total score for reliability obtained through by Cronbach's alpha method was 0.522 ([Taghizadeh & Mohebbipour, 2017](#)).

Templer Death Anxiety Scale

This questionnaire was designed in 1970 by Templer and includes 15 parts which evaluate subjects' attitude towards death. The subjects answer the questions only by saying Yes/No. In its original version, test-retest reliability coefficient of the scale is reported as 0.83, 0.27 and 0.40 according to its correlations to anxiety, manifest anxiety and depression scales, respectively ([Templer, 1970](#)). [Kelly and Corriveau \(1995\)](#) have reported 0.85 and 0.73 for test-retest reliability and internal consistency coefficient of this scale, respectively. In Iran, [Rajabi and Bahrani \(2001\)](#) considered reliability and validity of the scale and evaluated its composite reliability coefficient as 0.60 and internal consistency coefficient as 0.73

Procedure

After obtaining a written permission from the Department of Education and approval of the Research and Ethics Committee, with the letter number 5200/44061/5801, and after explaining the research and its objectives, the written consent of the candidates for participation was taken in research. Data were collected in two stages. In the first stage, after completing the BAS/BIS scale, the Bart Balloon Risk Assignment task was performed. Then, on the second day, first the Wisconsin cards were completed, then the emotion dysregulation scale was completed.

Computer tests were installed on the laptop and performed individually in a separate room, and finally, the obtained data were analyzed using SPSS-22 software. At last, eight 80-minute emotion regulation sessions were taught in groups to thank the participants.

Results

According to the results, the mean age and standard deviation of group with traumatic experience were 35.18 and 5.20 while for the control group, they were 35.06 and 5.10, respectively. For both groups, the highest distribution was related to females, while the least one was devoted to males. Also, the highest distribution of education was related to Bachelor's degree and the least one to diploma in both groups.

Table 1. Mean and standard deviation of the studied variables in both groups and Kolmogorove-Smirnov test to check the normality of variables' distribution

Variable	Group	M	SD	K-S	P
Cognitive flexibility	With traumatic experience	14.12	3.25	1.148	0.310
	Without traumatic experience	25.40	4.89	0.920	0.480
Psychological flexibility	With traumatic experience	41.67	5.54	1.105	0.327
	Without traumatic experience	56.17	6.80	0.874	0.493
Death Anxiety	With traumatic experience	12.10	2.52	1.750	0.197
	Without traumatic experience	8.13	2.04	1.322	0.241

Table 1 presents the mean and standard deviation of the studied variables for both groups—with and without traumatic experiences. Also, the results of Kolmogorov-Smirnov test show the normality aspect of data distribution. In order to consider variances, Levene's test was run the results of which demonstrated equality of variances (cognitive flexibility, $p > .05$, $F = 0.571$, psychological flexibility, $p > .05$, $F=0.918$, death anxiety, $p > .05$, $F=0.197$). The results of Test box ($p > .05$; $F = 1.891$) confirmed the assumption of similarity of variance-covariance matrices.

Table 2. The results of significance test of multivariate variance analysis performed on the studied variables

Test	Value	F	DFR	DfE	P	Square 1
Pilay effect test	0.316	3.825	3	36	0.007	0.316
Lambda Wilkes test	0.715	3.825	3	36	0.007	0.316
Hotelling effect test	0.314	3.825	3	36	0.007	0.316
Test of the largest root of the error	0.319	3.825	3	36	0.007	0.316

It can be observed in Table 2 that the significance level of all tests allow us to use multivariate variance analysis. The results demonstrate that regarding at least one of the dependent variables, there is a significant difference between the two groups ($p < .01$; $F = 3.82$; $\text{Lambda Wilkes} = 0.715$).

Table 3. Results of multivariate variance analysis test (MANOVA) on the variables of the research

Source	Dependent variable	Type III sum of Squares	df	Mean Square	F	P	Etc
Group	Cognitive flexibility	2196.392	1	2196.392	9.804	0.001	0.138
	Psychological flexibility	2858.256	1	2858.256	15.073	0.001	0.201
	Death anxiety	2248.150	1	2248.150	12.627	0.001	0.186

It is clear from Table 3 that the mean scores of cognitive and psychological flexibility for individuals with traumatic experience were lower than those of individuals without traumatic experience, while the mean scores of death anxiety for individuals with traumatic experience were higher than those of individuals without traumatic experience ($p < .01$).

Discussion

The present study compared the cognitive–psychological flexibility and death anxiety in people with and without traumatic experiences. The results demonstrated that the mean scores of cognitive and psychological flexibility for the group with traumatic experience were lower than those of the control group. Our results are consistent with the findings of Dick et al. (2019), Caldwell et al. (2015), Ziv et al. (2018) and Daneshvar et al. (2020). According to the results, cognitive flexibility is defined as individual's capability for inhibiting himself from performing an inefficient, dominant reaction as well as the ability of achieving more unlikely alternatives. Thus, it is supposed to have two types of inhibition of improper reaction and alteration of attention toward other mental preparations (Goetter & Elizabeth, 2010). Accordingly, one of the

characteristics of individuals with traumatic experience is to have mental rumination (Carbonella & Timpano, 2016) which results in disorder for psychological flexibility that is improper reactions and concentrating on other preparations. So, getting lower scores by these individuals is not unexpected. In particular, individuals with lower flexibility forget their past experiences. They preserve their previous experiences with negative consequences and their persistence damages their compatibility with new conditions (Goetter & Elizabeth, 2010). Gunduz (2013) states that individuals with cognitive inflexibility respond to environmental changes, changes in their social life and jobs with difficulty; they need to be stricter and like to perform everything in a given manner. Thus, every change can make them confused and anxious. Additionally, being psychologically flexible means to have the capability of producing situation-dependent emotional responses to positive and negative events (Gupa & Bonanno, 2011). As a result, experiencing traumatic events which affect individuals' emotions can lay the groundwork reducing these individuals' psychological flexibility. Also, the results demonstrated that the mean scores of death anxiety were lower for individuals with traumatic experiences than those without traumatic experiences ($p < .01$). Our results are in line with the findings of Seyed Ahmadi and Marani (2018) and Moling (2019). It should be noted that death anxiety is a kind of anxiety which is experienced by living humans and can affect their health, especially mental health (Hoeltherhoff, 2010) and its effects are more clarified when that individual is exposed to harmful factors.

Conclusion

Experiencing any traumatic factor resulted from severe or relatively severe events causes the individual to feel death in exposing to that event and consequently he would experience more anxiety. Generally, our results represent cognitive–psychological flexibility and death anxiety for individuals with traumatic experiences. Employing purposeful and available sampling method as well as not considering and controlling social protection level and individual's traits (which has a direct influence on individual's reaction to harmful conditions) are among considerable limitations of our research. Considering these limitations in future research is suggested.

Disclosure statement

No potential conflict of interest was reported by the authors.

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References

- Abdel-khalek, A., Lester, D. (2006). Optimism and pessimism in Kuwaiti and American college students. *International journal of social psychiatry*, 52(2), 110-126. doi:10.1177/0020764006062092
- Aldao, A., Sheppes, G., Gross, J. J. (2015). Emotion regulation flexibility. *Cognitive Therapy and Research*, 39(3), 263-278. doi:10.1007/s10608-014-9662-4
- Alison, M., Dayan, J., Leone, G., Fraise, F., & Carine, M. (2020). Resilience after trauma: The role of memory suppression. *Science*, 367, 8477- 8484. doi: 10.1126/science.aay8477
- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of DSM-5 Psychiatric Disorders*. Yahya Sayed Mohammadi translation. (2014). Fourth Printing, Tehran: Ravan Publishing. doi:10.1176/appi.books.9780890425596
- Bonanno, G. A., Burton, C. L. (2013). Regulatory flexibility: An individual differences perspective on coping and emotion regulation. *Perspectives on Psychological Science*, 8(6), 591-612. doi: 10.1177/1745691613504116
- Caldwell, J. G., Krug, M. K., Carter, C.S., Minzenberg, M.J. (2014). Cognitive control in the face of fear: Reduced cognitive emotional flexibility in women with a history of child abuse. *J Aggress Maltreat Trauma*; 23(5), 454-72. doi:10.1080/10926771.2014.904466
- Carbonella, J. Y., Timpano, K. R. (2016). Examining the link between hoarding symptoms and cognitive flexibility deficits. *Behav Ther*; 47(2): 262-73. doi:10.1016/j.beth
- Daneshvar, S., Basharpour, S., Shafiei, M. (2020). Self-compassion and cognitive flexibility in trauma-exposed individuals with and without PTSD. *Current psychology*, 13(2), 55- 63. doi:10.1007/s12144-020-00732-1
- Dennis, J. P., Wal, J. S. (2010). The cognitive flexibility inventory: Instrument development and estimates of reliability and validity. *Cog Therap Res*, 34(3), and 241-53. doi:10.1007/s10608-009-9276-4
- Dick, A.M., Niles, B.L., Street, A.E., DiMartino, D.M., Mitchell, K.S. (2014). Examining mechanisms of change in a yoga intervention for women: The influence of mindfulness, psychological flexibility, and emotion regulation on PTSD symptoms. *J Clin Psychol*, 70(12), 1170-82. doi: 10.1002/jclp.22104
- Gan, Y., Liu, Y., Zhang, Y. (2004). Flexible coping responses to severe acute respirator ysyndrome-related and daily life stressful events. *Asian Journal of Social Psychology*, 7, 55–66. doi:10.1111/j.1467-839X.2004.00134.x
- Goetter, E.M., Elizabeth, M. (2010). *An empirical investigation of depressive rumination: implications for cognitive flexibility, problem solving and depression*. MA thesis. Philadelphia. Science Drexel University.
- Gunduz, B. (2013). Emotional intelligence, cognitive flexibility and psychological symptoms in preservice teachers. *Educ Res Rev*, 8(13), 1048-56. doi:10.5897/ERR2013.1493
- Gupta, S., Bonanno, G.A. (2011). Complicated grief and deficits in emotional expressive flexibility. *Journal of abnormal psychology*, 120(3), 635. doi:10.1037/a0023541
- Hayse, S.C., Masuda, A., Bissett, R., Luma, J., Guerrero, L.F. (2004). DBT, FAP and ACT: How empirically oriented are the new behavior therapy technology? *Behavior Therapy*, 35, 35-54. doi:10.1016/S0005-7894(04)80003-0
- Herbert, J. D., Forman, E. M., Kaye, J. L., Gershkovich, M., Goetter, E., Yuen, E. K., Berkowitz, S. (2018). Randomized controlled trial of acceptance and commitment therapy versus traditional cognitive behavior therapy for social anxiety disorder: Symptomatic and behavioral outcomes. *Journal of contextual behavioral science*, 9, 88-96. doi:10.1016/j.jcbs.2018.07.008
- Hoelterhoff, M. (2010). *Resilience against death anxiety in relationship to post-traumatic stress disorder and psychiatric co-morbidity*. Plymouth: University of Plymouth.
- Izadi, R., and Abedi, M.R. (2013). *Acceptance and commitment based therapy*. Tehran: Jangal, Kavshiar.
- Jafarzadeh Dashbolagh, H., Abdi, M., Alizadeh, P. (2020). *Comparison of health anxiety in the elderly with and without traumatic experience*. The first conference on mental pathology, Mohaghegh Ardabili University, Ardabil, Iran.
- Kelly, M. N., Corriveau, D. (1995). The Corriveau - Kelly Scale. *Journal of Death and Dying*. 3(4), 311-315. doi:10.2190/1E5C-EY9Y-UEVE-UHCY
- Luthar, S.S. (1993). Annotation: methodological and conceptual issues in research on childhood resilience. *Journal of child psychology and psychiatry*, 34(4), 441-453. doi: 10.1111/j.1469-7610.1993.tb01030.x
- Rajabi, Gh., & Bahrani, M. (1380). Factor analysis of death anxiety scale questions. *Journal of Psychology*, 20 (2), 344 - 331.
- Rice, J. (2009). *The relationship between humor and death anxiety*. Department of Psychology, copyright. Missouri Western State University.
- Seyyed Ahadi, M., Marani, M. (2019). *Investigating the relationship between death anxiety and traumatic events in women referred to medical centers in Rasht*. First National Conference on Psychology and Education. Rasht, Iran.
- Taghizadeh, M.A., Mohebipour, A. (2017). *Emotional Flexibility Questionnaire*. Tehran: Yar Pouya Test Institute.

- Templer, D. I. (1970). The construction and validation of a Death Anxiety scale. *Journal of General Psychology*, 82, 165-177. doi:10.1080/00221309.1970.9920634
- Teymoorpour, S., Akbari, M., Hasani, J. (2019). The evaluation of mechanism of Effectiveness of Behavioral Activation Therapy (BA) through Cognitive Flexibility and Emotional Flexibility on Symptoms of Women with Major Depressive Disorders. *JCP*; 6(4), 1-13.
- Ziv, B., Naomi, B., Nimrod, J., Roee, A., Nili, G. (2020). Cognitive Flexibility Predicts PTSD Symptoms: Observational and Interventional Studies. *Front Psychiatry*, 4, 477- 486. doi: 10.3389/fpsy. 2018. 00477. eCollection 2018.
- Zong, J.G., Cao, X.Y., Cao, Y., Shi, Y.F., Wang, Y.N., Yan, C. (2010). Coping flexibility in college students with depressive symptoms. *Health and Quality of Life Outcomes*, 8 (66), 1-6. doi:10.1186/1477-7525-8-66