Journal of Surgery and Trauma 2024; 12(4):143-150
jsurgery.bums.ac.ir

ORIGINAL ARTICLE

Cognitive Emotion Regulation in Casualties Referred to the Emergency Department of Imam Reza Hospital in Birjand, Iran, in 2020: A Cross-sectional Study

Faeze Heidari[1] , Aliakbar Esmaeili[2] , Moloud Foogerdi[3] ✉

[1] *School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran*

[2] *Department of Psychiatry, School of Medicine, Ebnesina Hospital, Mashhad University of Medical Sciences, Mashhad, Iran*

[3] *Department of Emergency Medicine, School of Medicine, Birjand University of Medical Sciences, Birjand, Iran*

Received: October 21, 2023 ***Revised: December 11, 2024*** ***Accepted: December 14, 2024***

Abstract

Introduction: Non-fatal injuries resulting from road accidents present a significant public health challenge, with profound physical, psychological, and economic consequences for individuals. Given the importance of emotional regulation in post-accident recovery, examining this aspect among accident victims is essential. This study aimed to investigate and compare cognitive emotion regulation strategies between individuals injured in road accidents and a healthy control group.

Methods: A total of 120 individuals participated in this cross-sectional study, which included 60 accident victims referred to the Emergency Department of Imam Reza Hospital in Birjand, Iran, and 60 healthy individuals in 2020. Data were collected using the Cognitive Emotion Regulation Questionnaire (Garnefski, 2002). Statistical analysis was performed using SPSS (version 16) and t-test and one-way analysis of variance.

Results: The findings revealed that the mean scores for acceptance (P=0.003) and putting into perspective (P=0.04) were significantly higher among accident victims compared to the healthy control group. However, no significant differences were observed between the two groups in terms of positive refocusing, self-blame, rumination, catastrophizing, refocusing on planning, and positive reappraisal (P>0.05). Among accident victims, self-blame scores were significantly higher in men compared to women (P=0.02), while in the healthy group, positive refocusing scores were significantly higher in men than women (P=0.04).

Conclusion: The results of this study underscore the importance of enhancing positive cognitive emotion regulation strategies as a key component in intervention and educational programs for accident victims. Strengthening these strategies may contribute to improved emotional resilience and recovery following road accidents.

Key words: Cognitive aspects, Strategy, Traffic accident

Introduction

The World Health Organization (WHO) estimates that over 50 million people worldwide suffer from non-fatal injuries due to road accidents each year, resulting in long-term impairments for many. In the near future, vehicle accidents are expected to become the third leading cause of disability (1, 2). Non-fatal injuries have significant physical, psychological, and economic repercussions for individuals, families, and communities (3). The consequences of accidents

Tel: +985632381214
Fax: +985632440488
Po Box 97175-379
Email: jsurgery@bums.ac.ir

✉ **Correspondence to:**
Moloud Foogerdi, Department of Emergency Medicine, School of Medicine, Birjand University of Medical Sciences, Birjand, Iran
Telephone Number: +98 9155620348
Email: m.foogerdi@gmail.com

[DOI: 10.61186/jsurgtrauma.12.4.143]

encompass multiple dimensions, including functional deficits, cognitive impairments, psychological distress, and a reduction in the quality of life for both patients and their families (4). Post-traumatic stress disorder (PTSD), major depression, driving phobia, and other anxiety disorders are among the psychological conditions that can affect accident survivors (5). The prevalence of PTSD following road accidents varies between 6% and 45%, depending on factors such as time, sample size, and socio-economic and cultural characteristics of the country (6). According to WHO reports, although the prevalence of PTSD in accident victims is low, those affected by PTSD experience significant general health-related issues that require immediate intervention (7).

Cognitive emotion regulation strategies are generally classified into two categories: positive and negative. Positive strategies include positive refocusing, refocusing on planning, positive reappraisal, putting into perspective, and acceptance, while negative strategies encompass self-blame, blaming others, catastrophizing, rumination, and focusing on thought (8). Inability to reduce emotional arousal or difficulties in recognizing and differentiating emotional situations can lead to the perception of emotions as uncontrollable and unpredictable—two factors that increase the likelihood of panic (9). These difficulties indirectly affect the stability of PTS symptoms due to their negative impact on interpersonal relationships and overall functional capacity (10).

Cognitive emotion regulation strategies encompass the mental approaches individuals adopt to process and manage their thoughts following a negative or traumatic event (11, 12). These strategies include components such as self-blame, acceptance, rumination, positive refocusing, refocusing on planning, putting into perspective, catastrophizing, blaming others, and positive reappraisal (11). Research has shown that individuals who use rumination, catastrophizing, and self-blame cognitive styles are more vulnerable to the detrimental effects of trauma (13). Additionally, the presence of depression, anxiety, and an inability to cope with problems lead to a higher tendency for risky behaviors. Those who have learned maladaptive emotion regulation strategies are more likely to engage in risky behavior as a means of alleviating negative emotions (14).

Research on psychological disorders in individuals following accidents has clearly shown that some experience post-traumatic stress disorder, with findings highlighting the beneficial effects of cognitive emotion regulation training in alleviating stress and mood disorders (15, 16). Considering the high incidence of road accidents in Iran (17) and the link between maladaptive emotion regulation following accidents and engagement in risky behaviors, it is crucial to examine emotion regulation strategies and related demographic variables in accident victims. The present study aimed to compare cognitive emotion regulation strategies between accident victims seeking care at the Emergency Department of Imam Reza Hospital in Birjand and a control group.

Methods

This cross-sectional descriptive-analytical study was conducted after obtaining ethical approval from the Organizational Ethics Committee of Birjand University of Medical Sciences (Ethics Code: IR.BUMS.REC.1398.126). The study was carried out in 2020 on individuals injured in road accidents who sought medical attention at the Emergency Department of Imam Reza Hospital in Birjand, Iran. Participants were enrolled in the study after providing informed consent and confirming the absence of a history of psychiatric or mood disorders. Eligible participants were selected based on inclusion and exclusion criteria, which required individuals to be over 18 years old and injured in road accidents, without a history of psychiatric or mood disorders. Additionally, a control group was selected from the patients' companions who were age- and gender-matched and had no prior history of accidents.

The two groups—accident victims and individuals without a history of accidents—were matched based on demographic variables such as age and gender to control for confounding factors. The sample size for each group was determined to be 60 individuals using the formula for comparing means in two independent populations, based on a study conducted by Sabzaligol et al. (18).

$$N=\frac{(Z_{1-\frac{\alpha}{2}}\ Z_{1-\beta})^2(S_1+S_2)^2}{(\mu_1-\mu_2)^2}$$

The Cognitive Emotion Regulation Questionnaire (CERQ), developed by Garnefski et al. in 2002, was utilized for data collection. This self-report instrument consists of 36 items assessing nine cognitive strategies. Each item is rated on a five-point Likert scale (ranging from 1 = "never" to 5 = "always"), with each factor evaluated using four questions (19).

The reliability of the CERQ subscales, as reported by Garnefski et al. (2002), ranged from 0.71 to 0.81 (Cronbach's α). For the Persian version,

[DOI: 10.61186/jsurgtrauma.12.4.143]

Cronbach's α ranged from 0.64 to 0.82 (20). Hasani (2010) further standardized the Persian version, reporting strong internal consistency (Cronbach's α = 0.76–0.92), test-retest reliability (r=0.51–0.77), and robust construct validity, which was demonstrated through principal component analysis with varimax rotation, inter-subscale correlations, and criterion validity (21). In a more recent study, Mafakheri et al. (2022) found a Cronbach's α of 0.73 for the questionnaire (22).

To assess convergent and divergent validity in the Iranian context, the Depression Anxiety Stress Scale (DASS-21) was used. This scale consists of 21 items rated on a four-point scale (ranging from "applies to me very much or most of the time" to "does not apply to me at all") and evaluates three factors: depression, stress, and anxiety. Each question corresponds to a specific factor associated with emotional disorders, and each subscale score (ranging from 4 to 20) is obtained by summing the scores for the corresponding items (21, 22). The questionnaires were completed by the participants (individuals involved in accidents and the control group). In cases where participants had insufficient literacy to complete the questionnaire independently, trained nurses and healthcare personnel provided assistance.

Upon data collection, the results were analyzed using SPSS (version 16). The normality of the variables was assessed using the Kolmogorov-Smirnov test. To compare parameters, independent-samples t-test and one-way analysis of variance (ANOVA) were employed. A significance level of $\alpha \leq 0.05$ was considered statistically significant.

Results

A total of 120 individuals participated in the study, divided into two groups: those with a history of traffic accidents (n=60) and those without (n=60). The mean age in the group with a history of traffic accidents was measured at 32.65 ± 7.12 years, while in the group without a history of traffic accidents, mean age was measured at 34.70 ± 8.69 years. No significant difference was found between the two groups in terms of age (0.051) and gender (0.46). According to the results in Table 1, the mean scores for acceptance and putting into perspective were significantly higher in individuals with a history of accidents (P<0.05). However, the mean scores for positive refocusing, refocusing on planning, self-blame, blaming others, rumination, catastrophizing, and positive reappraisal showed no significant differences between the two groups (P>0.05).

According to the results presented in Table 2, the mean scores for positive refocusing, acceptance, refocusing on planning, positive reappraisal, putting into perspective, self-blame, blaming others, rumination, and catastrophizing showed no significant differences between age groups within the group with a history of accidents (P>0.05).

As shown in Table 2, the mean scores for positive refocusing, acceptance, refocusing on planning, positive reappraisal, putting into perspective, self-blame, blaming others, rumination, and catastrophizing revealed no significant differences within the group without a history of accidents (P>0.05).

According to the results presented in Table 3, the mean self-blame score was significantly higher in men than in women (P<0.05). However, the mean scores for positive refocusing, acceptance, refocusing on planning, positive reappraisal, putting into perspective, blaming others, rumination, and catastrophizing did not show any significant differences between genders within the group with a history of accidents (P>0.05).

Table 1. Mean scores for emotion regulation strategies in individuals with and without a history of accidents

Strategy	Group		*P*-value*
	With a history of accidents (Mean±SD)	Without a history of accidents (Mean±SD)	
Positive refocusing	13.90 ± 2.86	12.80 ± 3.90	0.08
Acceptance	14.77 ± 3.16	13.18 ± 2.57	0.003
Refocusing on planning	14.45 ± 2.99	14.08 ± 4.05	0.57
Positive reappraisal	15.10 ± 3.21	14.03 ± 3.94	0.11
Putting into perspective	15.88 ± 3.33	14.67 ± 3.29	0.04
Self-blame	11.73 ± 3.72	12.77 ± 3.25	0.11
Blaming others	10.25 ± 4.45	9.85 ± 3.67	0.59
Rumination	14.32 ± 3.53	13.57 ± 2.96	0.21
Catastrophizing	11.95 ± 4.35	11.42 ± 3.43	0.46

*Independent-samples t-test

[DOI: 10.61186/jsurgtrauma.12.4.143]

Table 2. Mean scores for emotion regulation strategies in individuals with and without a history of accidents, based on age groups

Strategy		Age				*P*-value*
		18-25 (Mean±SD)	25-30 (Mean±SD)	30-35 (Mean±SD)	>35 (Mean±SD)	
Positive refocusing	with a history	13.39 ± 3.18	14.61 ± 2.66	15.25 ± 2.98	13.86 ± 2.35	0.47
	without a history	34.3±14.40	24.4±10.73	08.4±13.77	3.62±12.57	0.13
Acceptance	with a history	14.78 ± 3.15	13.84 ± 3.28	13.25 ± 1.25	15.93 ± 3.24	0.26
	without a history	20.3±12.30	65.2±13.36	93.1±13.69	2.62±13.19	0.64
Refocusing on planning	with a history	14.53 ± 3.09	15.07 ± 2.96	15.50 ± 3.69	13.46 ± 2.69	0.45
	without a history	03.4±14.60	32.4±12.45	41.3±14.85	4.28±14.19	0.50
Positive reappraisal	with a history	14.67 ± 3.76	15.53 ± 2.63	15.75 ± 3.09	15.33 ± 2.74	0.82
	without a history	09.2±15.80	93.3±12.09	50.3±14.53	4.46±13.92	0.18
Minimization	with a history	15.64 ± 3.47	15.85 ± 2.94	13.50 ± 4.51	17.00 ± 2.95	0.28
	without a history	60.2±15.90	52.3±13.18	33.3±16.15	3.11±14.07	0.06
Self-blame	with a history	11.71 ± 4.17	12.69 ± 3.14	8.75 ± 4.51	11.73 ± 2.65	0.33
	without a history	08.2±11.90	61.3±13.63	75.2±12.69	3.74±12.76	0.69
Blaming others	with a history	10.50 ± 4.72	9.61 ± 4.07	10.50 ± 5.07	10.27 ± 4.51	0.95
	without a history	75.3±10.10	33.4±9.18	21.3±8.76	3.57±10.57	0.47
Rumination	with a history	14.46 ± 3.50	13.85 ± 3.10	13.75 ± 5.38	14.60 ± 3.74	0.93
	without a history	60.3±14.10	97.2±14.27	99.2±14.46	2.55±12.61	0.18
Catastrophizing	with a history	11.57 ± 4.25	12.46 ± 3.33	8.75 ± 2.18	13.07 ± 4.99	0.32
	without a history	16.3±12.70	48.3±11.18	06.4±10.31	3.16±11.57	0.42

* One-way analysis of variance (ANOVA)

As illustrated in Table 3, the mean score for positive refocusing was significantly higher in men than in women without a history of accidents (P<0.05). However, the mean scores for acceptance, refocusing on planning, positive reappraisal, putting into perspective, self-blame, blaming others, rumination, and catastrophizing did not show any significant differences between genders within the group without a history of accidents (P>0.05).

As delineated in Table 4, the mean scores for positive refocusing, acceptance, refocusing on planning, positive reappraisal, putting into perspective, self-blame, blaming others, rumination, and catastrophizing showed no significant differences between education levels within the group with a history of accidents (P>0.05).

Based on the results presented in Table 4, the mean scores for positive refocusing, acceptance, refocusing on planning, positive reappraisal, putting into perspective, self-blame, blaming others, rumination, and catastrophizing revealed no significant differences between education levels within the group without a history of accidents (P>0.05).

Table 3. Mean scores for emotion regulation strategies individuals with and without a history of accidents, based on gender

Strategy		Gender		*P*-value *
		Male (Mean±SD)	Female (Mean±SD)	
Positive refocusing	with a history	14.37 ± 2.92	13.09 ± 2.63	0.10
	without a history	13.70 ± 3.17	11.61 ± 4.47	0.04
Acceptance	with a history	15.05 ± 3.24	14.27 ± 3.04	0.36
	without a history	12.73 ± 2.61	13.77 ± 2.45	0.12
Refocusing on planning	with a history	14.68 ± 3.04	14.04 ± 2.95	0.43
	without a history	14.50 ± 3.50	13.53 ± 4.69	0.39
Positive reappraisal	with a history	15.26 ± 2.95	14.81 ± 3.67	0.61
	without a history	14.73 ± 3.28	13.11 ± 4.57	0.13
Minimization	with a history	15.95 ± 3.28	15.77 ± 3.49	0.85
	without a history	14.97 ± 2.68	14.27 ± 3.96	0.44
Self-blame	with a history	12.55 ± 3.58	10.31 ± 3.59	0.02
	without a history	12.59 ± 3.77	13.00 ± 2.48	0.61
Blaming others	with a history	10.37 ± 4.29	10.04 ± 4.81	0.78
	without a history	9.38 ± 3.67	10.46 ± 3.63	0.26
Rumination	with a history	14.10 ± 3.89	14.68 ± 2.85	0.55
	without a history	13.09 ± 3.06	14.19 ± 2.76	0.15
Catastrophizing	with a history	12.63 ± 4.74	10.77 ± 3.36	0.11
	without a history	10.88 ± 3.22	12.11 ± 3.62	0.17

* Independent-samples t-test

[DOI: 10.61186/jsurgtrauma.12.4.143]

Table 4. Mean scores for emotion regulation strategies in individuals with and without a history of accidents, based on education level

Strategy		Education level					*P*-value*
		Illiterate (Mean±SD)	Middle school (Mean±SD)	High school (Mean±SD)	Bachelor's degree (Mean±SD)	Master's degree (Mean±SD)	
Positive Refocusing	with a history	13.25 ± 2.87	14.25 ± 2.18	13.50 ± 3.55	14.78 ± 2.54	14.28 ± 1.60	0.74
	without a history	9.33±4.72	11.00±4.64	13.28±4.13	12.56±3.48	15.12±2.90	0.14
Acceptance	with a history	15.37 ± 3.62	14.75 ± 3.08	15.00 ± 3.37	14.00 ± 3.60	14.28 ± 1.70	0.90
	without a history	12.67±3.05	13.50±2.94	13.28±3.12	13.28±1.88	12.62±3.24	0.96
Refocusing on Planning	with a history	13.37 ± 2.82	14.75 ± 2.80	15.00 ± 3.18	13.55 ± 3.04	14.43 ± 3.10	0.61
	without a history	15.67±1.53	10.67±3.83	13.28±4.36	14.52±4.04	16.50±2.28	0.07
Positive Reappraisal	with a history	15.00 ± 4.00	15.83 ± 2.58	15.00 ± 3.90	15.22 ± 1.92	14.14 ± 2.27	0.87
	without a history	14.00±4.35	10.50±4.28	13.78±4.29	14.20±3.64	16.75±1.67	0.06
Minimization	with a history	15.50 ± 4.84	16.00 ± 2.04	16.37 ± 3.41	15.89 ± 3.69	14.42 ± 2.76	0.75
	without a history	16.67±2.31	12.00±4.28	14.61±3.66	14.80±3.13	15.62±1.06	0.22
Self-blame	with a history	11.25 ± 2.18	11.08 ± 4.19	12.04 ± 4.17	12.00 ± 2.95	12.00 ± 4.24	0.95
	without a history	13.33±0.57	12.33±4.32	12.88±3.16	12.44±3.12	13.62±4.10	0.91
Blaming Others	with a history	9.00 ± 3.18	12.41 ± 4.46	9.66 ± 4.10	8.88 ± 3.05	11.71 ± 4.34	0.24
	without a history	6.33±1.04	10.83±5.07	10.11±3.44	10.20±3.55	8.75±3.15	0.38
Rumination	with a history	12.50 ± 4.14	14.16 ± 2.97	15.45 ± 3.21	13.55 ± 4.58	13.71 ± 2.75	0.26
	without a history	13.67±0.57	14.50±2.07	13.94±3.84	13.60±2.50	11.87±2.99	0.49
Catastrophizing	with a history	10.50 ± 5.58	13.67 ± 3.55	12.33 ± 4.11	10.89 ± 4.98	10.71 ± 4.02	0.41
	without a history	12.00±6.00	12.33±2.94	11.39±3.55	11.72±3.47	9.62±2.44	0.59

* One-way analysis of variance (ANOVA)

Discussion

The results of this study, which examined cognitive emotion regulation in traffic accident victims admitted to the Emergency Department of Imam Reza Hospital in Birjand, revealed that cognitive emotion regulation strategies significantly differed between individuals with and without a history of accidents.

Individuals employ different emotion regulation strategies when facing stressful events to modify or adjust their emotional experiences. Cognitive processes assist individuals in regulating their emotions. The findings indicated that the mean scores for two adaptive strategies (i.e., acceptance and putting into perspective) were significantly higher in the group with a history of accidents. However, no significant differences were observed in the mean scores for positive refocusing, refocusing on planning, and positive reappraisal. These findings are inconsistent with the studies conducted by Wisco et al. (2013), Ramezanzadeh et al. (2014), and Sharifibastan et al. (2016), which may be attributed to differences in the study populations, as a study by Ramezanzadeh et al. focused on adolescents, and Sharifibastan et al. studied women with cancer (23-25).

In general, employing adaptive cognitive emotion regulation strategies leads to a reduction in the experience of negative emotions. Troy et al. (2012) argue that utilizing positive emotion regulation strategies when encountering stress can, in many cases, reduce negative emotions and enhance positive emotions (26). Additionally, Gross et al. (2014) contend that the use of positive cognitive emotion regulation strategies moderates individuals' cognitive evaluations and mental reactions to stressful events, resulting in appropriate cognitive, motivational, and behavioral responses in such situations (27). Furthermore, individuals who habitually employ positive strategies, such as interpreting events in a positive light rather than focusing on negative aspects, considering effective planning for problem-solving, attributing positive meaning to events, and downplaying the significance of an event compared to more significant occurrences, experience fewer psychological problems than those who use these strategies less frequently (24).

A study conducted by Shadkam and Molazadeh (2016) reported that individuals exposed to traumatic events exhibited greater difficulties in

[DOI: 10.61186/jsurgtrauma.12.4.143]

emotion regulation and a higher tendency to use maladaptive emotion regulation strategies (28).

According to the findings of the present study, there were no significant differences in the mean scores of self-blame, blaming others, rumination, and catastrophizing between the case and control groups. Although these findings align with a study by Wisco et al. (2013), they are inconsistent with those of Heron-Delaney et al. (2013) (25, 29). It is noteworthy that some studies, such as those by Tøien et al. (2010) and Papadakaki et al. (2017), have demonstrated that a large number of traffic accident victims experience high levels of psychological distress and physical disability up to one year after the injury (30, 31). These individuals tend to engage in self-blame for what has occurred, become preoccupied with thoughts and emotions related to the negative event (accident), and perceive the event as more severe and frightening than it actually was (24). The use of maladaptive cognitive emotion regulation strategies in stressful situations can reduce positive emotions and increase negative emotions, leading to adverse psychological outcomes such as diminished mental health. Previous research (24, 30) has also emphasized that excessive use of negative strategies, such as rumination, catastrophizing, self-blame, and blaming others is associated with higher levels of emotional reactions, including symptoms of depression (10%) (32), anxiety (36%) (33), and travel phobia (20%)(33). Continuous use of these strategies exacerbates and perpetuates negative emotional responses, causing individuals to experience distress and agitation instead of adopting appropriate reactions.

There were no significant differences in the mean scores for positive refocusing, acceptance, refocusing on planning, positive reappraisal, putting into perspective, self-blame, blaming others, rumination, and catastrophizing in either group across age groups. These findings contradict the study conducted by Salehi et al. (2017), which found a correlation between negative life events, age, depression, and some cognitive emotion regulation strategies (34). The discrepancies may be attributed to differences in the study populations.

Based on the results of a study carried out by Garnefski and Kraaij (2006), the use of rumination, catastrophizing, and self-blame strategies had a direct relationship with depressive symptoms and an inverse relationship with positive reappraisal (13). The findings of a study by Mazloom and Yaghubi (2016) indicated that demographic characteristics are significant; however, given that the sample group was restricted to adolescents, it is likely that the cognitive developmental characteristics unique to this age group may have influenced the results (35). A study by Boden et al. (2013) revealed that the severity of PTSD symptoms is related to the duration of hospitalization and the participant's age, leading to a reduction in PTSD symptoms.

In the present study, the mean self-blame score was significantly higher in men than in women in the group that had experienced an accident. However, no significant differences were observed in the scores for positive refocusing, acceptance, refocusing on planning, positive reappraisal, putting into perspective, blaming others, rumination, and catastrophizing between men and women. In the control group, a significant relationship was found between positive refocusing and gender, with men scoring higher than women. However, no significant differences were seen in the other cognitive emotion regulation strategies.

Emotion is a multidimensional concept that encompasses various components, including physiology, expression, and emotional experience. Gender differences exist across these dimensions but do not necessarily correlate. Gender-based emotional patterns are explained as a consequence of socialization, and the effects of emotional regulation strategies are culture-dependent. However, a study by Rezaee et al. (2016) showed that maladaptive strategies such as self-blame, rumination, catastrophizing, and blaming others, as well as the adaptive strategy of positive reappraisal, play a significant role in predicting anger in adolescent girls (36). It can be inferred that girls who consistently dwell on unpleasant experiences in stressful situations, hold themselves and others responsible for negative experiences, and perceive events as more catastrophic tend to experience greater anger.

A study by Aminabadi (2012) revealed that cognitive emotion regulation scores were significantly higher in girls than in boys, with notable differences observed in the subscales associated with blaming others, coping, and positive thinking, with the latter being the most prominent (37). These differences may stem from the higher stress levels experienced by girls compared to boys. However, the differences with the present study lie in the sample population and slight variations in research objectives. One of the limitations of the present study is the self-reported nature of the assessment tool.

Conclusions

The results of this study clearly demonstrated that enhancing positive cognitive emotion

[DOI: 10.61186/jsurgtrauma.12.4.143]

regulation strategies can be a crucial component in interventions and educational programs for patients and accident victims. Strengthening positive cognitive emotion regulation strategies should be regarded as a fundamental factor in improving public health and reducing the incidence of psychological and mood disorders, enabling accident victims to overcome trauma-related emotions and resume their normal lives. The influence of cognitive emotion regulation on PTSD stemming from various traumatic events warrants further investigation. Furthermore, considering the critical role of cognitive emotion regulation in predicting PTSD, greater emphasis should be placed on training individuals who are either at risk of or have already experienced traumatic events.

Acknowledgments

We express our gratitude to the Staff at the Emergency Department of Imam Reza Hospital in Birjand and to the participants in the study.

Funding

The authors received no financial support for this study.

Conflict of Interest

There are no conflicts of interest among the authors.

References

1. Sepahvand E, Khankeh H, Hosseini M, Akhbari B. Emotional interaction in road traffic injury: A qualitative study on people with spinal cord injury. J Med Life. 2019;12(4):419-425.
2. World Health Organization, Dept. of Violence Injury Prevention. Global status report on road safety: time for action: World Health Organization; 2009.
3. Pawłowski W, Goniewicz K, Schwebel DC, Shen J, Goniewicz M. Road traffic injuries in Poland: magnitude and risk factors. Eur J Trauma Emerg Surg. 2019;45(5):815-820.
4. Kovacevic J, Miskulin M, Degmecic D, Vcev A, Leovic D, Sisljagic V, et al. Predictors of mental health outcomes in road traffic accident survivors. J Clin Med. 2020;9(2):309.
5. Mayou R, Bryant B. Outcome 3 years after a road traffic accident. Psychol Med. 2002;32(4):671-675.
6. Lin W, Gong L, Xia M, Dai W. Prevalence of posttraumatic stress disorder among road traffic accident survivors: A PRISMA-compliant meta-analysis. Medicine. 2018;97(3):e9693.
7. Dai W, Liu A, Kaminga AC, Deng J, Lai Z, Wen SW. Prevalence of posttraumatic stress disorder among children and adolescents following road traffic accidents: A meta-analysis. Can J Psychiatry. 2018;63(12):798-808.
8. Garnefski N, Van Den Kommer T, Kraaij V, Teerds J, Legerstee J, Onstein E. The relationship between cognitive emotion regulation strategies and emotional problems: comparison between a clinical and a non-clinical sample. Eur J Personality. 2002;16(5):403-420.
9. Bouton M, Mineka S, Barlow D. A modern learning theory perspective on the etiology of panic disorder. Psychol Rev. 2001;108(1):4-32.
10. Tull MT, Barrett HM, McMillan ES, Roemer L. A preliminary investigation of the relationship between emotion regulation difficulties and posttraumatic stress symptoms. Behav Ther. 2007;38(3):303-313.
11. Moyal N, Henik A, Anholt GE. Cognitive strategies to regulate emotions–current evidence and future directions. Front Psychol. 2014;4:1019.
12. Werner KH, Goldin PR, Ball TM, Heimberg RG, Gross JJ. Assessing emotion regulation in social anxiety disorder: The emotion regulation interview. J Psychopathol Behav Assess. 2011;33(3):346-354.
13. Garnefski N, Kraaij V. Relationships between cognitive emotion regulation strategies and depressive symptoms: A comparative study of five specific samples. Personality Individual Diff. 2006;40(8):1659-1669.
14. Auerbach RP, Abela JR, Ho M-HR. Responding to symptoms of depression and anxiety: Emotion regulation, neuroticism, and engagement in risky behaviors. Behav Res Ther. 2007;45(9):2182-2191.
15. Barańczuk U. Emotion regulation mediates the effects of temperament traits and posttraumatic stress disorder symptoms on affect in motor vehicle accident survivors. Transport Res Part F: Traffic Psychol Behav. 2018;58:528-535.
16. Garnefski N, Baan N, Kraaij V. Psychological distress and cognitive emotion regulation strategies among farmers who fell victim to the foot-and-mouth crisis. Personality Individual Diff. 2005;38(6):1317-1327.
17. Shavaleh R, Motevalian SA, Mahdavi N, Haddadi M, Mohaghegh MR, Hamedi Z. Epidemiological study of hospitalized road traffic injuries in Iran 2011. Med J Islam Repub Iran. 2018;32:50.
18. Sabzaligol M, Kazemi AS. Comparing cognitive emotion regulation in two male groups; suffering from cancer and cancer free subjects. Med Sci J Islamic Azad Univ. 2016;26(4):256-263.
19. Garnefski N, Kraaij V, Spinhoven P. Negative life events, cognitive emotion regulation and emotional problems. Personality Individual Diff. 2001;30(8):1311-1327.
20. Abdi S, Taban S, Ghaemian A. Cognitive emotion regulation questionnaire: validity and reliability of Persian translation of CERQ-36 item. Procedia-Social Behav Sci. 2012;32:2-7.
21. Hasani J. The psychometric properties of the cognitive emotion regulation questionnaire (CERQ). J Clin Psychol. 2010;2(3):73-84.
22. Mafakheri A, Khorrami M, Kaviyani F, Ashrafifard S. Effectiveness of cognitive-behavioral therapy on cognitive strategies of emotional regulation and general self-efficacy among mothers of children with cerebral palsy. Health Psychol. 2022;11(42):85-100.
23. Ramezanzadeh F, Moradi A, Mohammadkhani S.

[DOI: 10.61186/jsurgtrauma.12.4.143]

Effectiveness of the training of emotion regulation skills in executive functions and emotion regulation strategies in adolescents at risk. JCognitive Psycho. 2014;2(2):37-45.
24. Sharifibastan F, Yazdi S, Zahraei S. The role of cognitive emotion regulation and positive and negative affect in resiliency of women with breast cancer. Iran J Psychiatr Nurs. 2016;4(2):38-49.
25. Wisco BE, Sloan DM, Marx BP. Cognitive emotion regulation and written exposure therapy for posttraumatic stress disorder. Clin Psychol Sci. 2013;1(4):435-442.
26. Troy AS. Cognitive reappraisal ability as a protective factor: Resilience to stress across time and context. Electronic Theses and Dissertations. 2012.
27. Gross JJ. Emotion regulation: Conceptual and empirical foundations. Handbook of emotion regulation(2nd ed). 2014:3-20.
28. Shadkam S, Molazadeh J, Yavari A H. Study of the mediating role of emotion regulation difficulties in the relationship between exposure to traumatic events and risky sexual behavior among substance abusers. Yafteh. 2016;18(3):78-87.
29. Heron-Delaney M, Kenardy J, Charlton E, Matsuoka Y. A systematic review of predictors of posttraumatic stress disorder (PTSD) for adult road traffic crash survivors. Injury. 2013;44(11):1413-1422.
30. Papadakaki M, Ferraro OE, Orsi C, Otte D, Tzamalouka G, Von-der-Geest M, et al. Psychological distress and physical disability in patients sustaining severe injuries in road traffic crashes: results from a one-year cohort study from three European countries. Injury. 2017;48(2):297-306.
31. Tøien K, Myhren H, Bredal IS, Skogstad L, Sandvik L, Ekeberg Ø. Psychological distress after severe trauma: A prospective 1-year follow-up study of a trauma intensive care unit population. J Trauma Acute Care Surg. 2010;69(6):1552-1559.
32. Ehring T, Ehlers A, Glucksman E. Do cognitive models help in predicting the severity of posttraumatic stress disorder, phobia and depression after motor vehicle accidents? A prospective longitudinal study. Consult Clin Psychol. 76:219-230.
33. Chahraoui K, Laurent A, Bioy A, Quenot J-P. Psychological experience of patients 3 months after a stay in the intensive care unit: A descriptive and qualitative study. J Crit Care. 2015;30(3):599-605.
34. Salehi A. The role of cognitive emotion regulation strategies in the prediction of depression. Knowledge Res Applied Psychol. 2017;16(1):108-117.
35. Mazloom M, Yaghubi H. Role of emotion regulation and thought control in prediction of post-traumatic stress disorder. J Clin Psychol. 2016;8(4):1-10.
36. Rezaee S, Gholipoor F, Reshadati S. Role of cognitive emotion regulation and masculine-feminine sex-role preferences in adolescent girls aggressiveness. Rooyesh-e-Ravanshenasi J. 2016;5(1):7-28.
37. Aminabadi Z. Factor structure and validation of the cognitive emotion regulation questionnaire. Int J Behav Sci. 2012;5(4):365-371.

[DOI: 10.61186/jsurgtrauma.12.4.143]