Middle Black Sea Journal of Health Science / Mid Blac Sea J Health Sci **May 2022; 8(2):187-201**

RESEARCH ARTICLE **DOI:** 10.19127/mbsjohs.980157

Emotion Regulation Difficulties and Childhood Trauma are Associated with Alcohol Use Severity: A Comparison with Healthy Volunteers

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Received: 10 December 2021, Accepted: 22 February 2022, Published online: 31 May 2022

Abstract

Objective: Emotion regulation difficulties and the effect of childhood traumas on the etiology of alcohol use disorder are an important topic in the literature. This study aimed to evaluate patients with alcohol use disorder in terms of emotional control and childhood trauma and the difficulty in trauma and emotion regulation as a risk factor.

Methods: In this study, 37 patients with alcohol use disorder (AUD) and 37 healthy volunteers were included. The participants were assessed with a 35-item sociodemographic data form, Severity of Alcohol Dependence Questionnaire (SADQ-C), Childhood Trauma Questionnaire (CTQ-28), and Difficulties in Emotion Regulation Scale (DERS). All participants were interviewed based on DSM-5.

Results: Participants with AUD had more difficulty in regulating emotions in all areas. clarity, awareness, impulse, nonacceptance, objectives, and strategies were deteriorated ($p < 0.05$). Patients with AUD had more childhood traumas. All trauma types, especially physical neglect and emotional abuse were more common in participants with AUD. Assessment of the traumas and emotion regulation revealed that emotional abuse increased the risk of AUD by 1.6 times (95% CI 1.025–2.801) and maladaptive emotion regulation strategies are linked to addiction severity.

Conclusion: The maladaptive emotional strategies of patients with AUD were worse than those of healthy volunteers. Patients with AUD experienced more childhood traumas. Particularly, emotional abuse increased the risk of AUD. As a result, childhood traumas were more severe in patients with AUD, and they adversely affected emotion regulation strategies and increased addiction severity.

Keywords: Alcohol Use Disorder; Childhood Trauma; Emotion Regulation.

Suggested Citation: Gurgen A, Oyekcin DG, Ozturan DD. Emotion Regulation Difficulties and Childhood Trauma are Associated with Alcohol Use Severity: A Comparison with Healthy Volunteers. Mid Blac Sea Journal of Health Sci, 2022;8(2):187-201

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INTRODUCTION

Emotion regulation is the awareness and understanding of emotions, the ability to control impulsive behaviors and behave in accordance with desired goals when experiencing negative emotions, and the ability to use situationally appropriate emotion regulation (1). Emotion regulation strategies are classified under five categories: state choice, state adjustment, paying attention, cognitive change, and reaction change (2).

Difficulties in emotion regulation are defined as the absence or deficiency of any or all of these abilities. These difficulties may occur in six separate dimensions, including (a) lack of awareness of emotional responses, (b) lack of clarity of emotional responses, (c) nonacceptance of emotional responses, (d) limited access to emotion regulation strategies perceived as effective, (e) difficulties controlling impulses when experiencing negative emotions, and (f) difficulties engaging in goal-directed behaviors when experiencing negative emotions (3).

Difficulties in emotion regulation are central to the development and maintenance of psychopathology. The use of strategies (e.g., rumination, suppression, and avoidance) to regulate emotion has been found to be associated with a broad range of mental, mood, anxiety, personality, and addictive disorders (4). Emotion regulation difficulties are also a key characteristic of alcohol use disorder (AUD). Patients have difficulties in identifying emotions in themselves/others, and these emotional impairments elicit difficulties in interpersonal relationships, which may trigger further drinking behavior and relapse (5). These deficits in adaptive emotion regulation skills also predict AUD (6).

Knowledge of the mechanisms involved in the difficulties of emotion regulation may contribute to a better understanding of childhood trauma-alcohol association. A history of childhood trauma can affect the development, severity (amount of alcohol consumption, early-onset drinking), treatment outcomes, and course of AUD. Patients exposed to childhood trauma have been reported to develop AUD at an earlier age and show more severe alcohol abuse characteristics compared with patients without childhood trauma (7–9). In particular, childhood traumas may be associated with a greater severity of alcohol dependence (10) and defined as one of the most important risk factors for AUD (11).

The high rates of childhood trauma among these patients have been associated with the self-medication hypothesis. This hypothesis suggests that individuals may consume alcohol or other substances to cope with psychological distress, thereby alleviating negative emotional states and evoking positive emotions (12). Affective processes play a crucial role in substance use. Substance use can serve as an emotion regulation strategy (13). Therefore, exposure to early childhood maltreatment can lead to early

emotion regulation difficulties or emotion dysregulation in later life.

The patterns of emotion regulation difficulties are associated with higher levels of internalizing and externalizing psychopathology, suggesting a transdiagnostic pathway linking childhood maltreatment to psychopathology through disruptions in emotion regulation (14). In addition to biological, psychological, and social factors (15), both childhood traumas and difficulties in emotion regulation have been suggested to play a role in the severity of AUD (5).

The aim of the current study was to examine emotion regulation difficulties and childhood traumas, which are associated with the severity of alcohol use, by comparing patients with AUD with healthy volunteers. First, we hypothesized that patients with AUD may have more emotion regulation difficulties and childhood traumas. Second, the severity of alcohol use may be associated with certain types of emotion regulation strategies and childhood traumas. Third, the childhood traumas may contribute to emotion regulation difficulties in AUD.

METHODS

Participants

Our study was approved by the Ethics Committee of Onsekiz Mart University Rectorate, Faculty of Medicine, Clinical Research Ethics Committee, dated 13.04.2016 and numbered 07-09, and was approved by the Faculty Administrative Board dated 28.06.2016 and numbered 2016/27. The total sample group consisted of 74 participants (37 patients and 37 healthy volunteers), who were age/gender-matched. Patients admitted to the Psychiatry Addiction Department of Çanakkale Onsekiz Mart University (Medical Faculty) between April 2016 and January 2017 were enrolled in the study. A total of 37 healthy participants, randomly selected to age/gender-matched with the patients, those were above the age of 18 and agreed to participate in the study. Those who had no substance use disorder/AUD, were included in the study as the control group. . The sample size consists of all patients who were admitted to the hospital during the study period, except for the exclusion criteria.

Patients under the age of 18, those could not fill out the scales due to illiteracy, those diagnosed with dementia, psychosis, or mental retardation, those with bipolar disorder in an episodic period, those with addictive substance use disorder other than alcohol, those who refused to participate in the study, and those using drugs such as benzodiazepine (which affects cognitive functions) were excluded from the study.

Data Collection Tools

Demographic Data

A sociodemographic data form consisting of 35 questions about information such as name, surname, gender, age, place of residence, occupation, marital status, monthly income,

education status, and alcohol use was given to all the participants.

Severity of Alcohol Dependence Questionnaire (SADQ-C)

The SADQ-C is a Likert-type scale with 20 questions. The scale score is obtained as the sum of individual item scores. In this study, a form based on the DSM-5 diagnostic criteria from a validity and reliability study was used (16,17).

Childhood Trauma Questionnaire (CTQ-28)

The subscale and total scores of traumatic experiences were evaluated with CTQ-28 (18). In this study, we used a form from a previous validity and reliability study, which assessed five factors including physical abuse, sexual abuse, emotional abuse, physical neglect, and emotional neglect (19).

Difficulties in Emotion Regulation Scale (DERS)

The DERS consists of 36 items under the headings lack of awareness of emotional reactions (awareness), lack of emotional clarity (clarity), impulsivity (impulse), unacceptance of emotional reactions (nonacceptance), limited access to effective emotion regulation strategies (strategies), and difficulty in exhibiting goal-oriented behaviors while experiencing negative emotions (goals). It is a Likert-type self-rating scale (20).

Diagnostic Interview

In accordance with DSM-5 diagnostic criteria, psychiatric interviews were held with patients in an outpatient setting, and other comorbid psychiatric disorders of the patients were investigated

Statistical Analysis

Categorical variables are presented as % (n) and compared using the Chi-squared test. In addition, non-categorical (quantitative) (variables of the demographic data, DERS, and CTQ scores were applied to the Shapiro-Wilk normality test and compared using the Mann-Whitney U test, which are presented as the median (min–max). Although the median values were the same in the CTQ score comparison, there was a significant difference in the control group because of the difference between the distributions and means. For this, the average ± STD values were included in the CTQ score comparison. An average of ± STD (min–max) was used in the clinical description of the patient group. The Spearman correlation test was performed to investigate the correlation of the DERS, CTQ, SAQD-C, and clinical variables of the AUD group. Logistic regression analysis was performed to determine the AUD risk factors, and the CTQ and DERS subscales were included in the model. SPSS 19.0 was used, and $p < 0.05$ was defined as statistically significant.

RESULTS

Demographic Findings

In the patient and control groups, there were more male than female participants [91% (n:34) and 89.2% (n:33), respectively]. There was no significant difference between the patient and control groups in terms of age, monthly income,

and occupational status (p = 0.449, p = 0.065, and p = 0.117, respectively). The education level was lower in the patient group than in the control group (p = 0.009). The divorce rates were higher [18.9% (n:7)] in the patient group than in the control group (p = 0.005). Demographic data are presented in Table 1 and 2.

Table 1. Mann-Whitney U Test of the Sociodemographic Characteristics of Participants

	Mean	Standard deviation (SD)	Median	Min–max	p
Age					
Patient	41.8	12.7	41.0	18–68	0.449
Control	39.9	13.6	39.0	19–66	
Income per month (US Dollar)					
Patient	605.9	522.7	569.8	0–2859.0	0.065
Control	819.3	721.0	569.8	0–5273.5	
Education level (year)					
Patient	9.7	3.0	11.0	5–15	***0.009***
Control	11.8	3.8	13.0	5–21	

Table 2. Chi-Square Test of the Sociodemographic Characteristics of Participants

	AUD		Control		
	n	%	n	%	p
Gender					
Female	3	8.1	4	10.8	1.000
Male	34	91.9	33	89.2	
Marital status					
Married	21	56.8	24	64.9	***0.005***
Non-married	9	24.3	13	35.1	
Divorced	7	18.9	0	0	
Occupation status					
Working	19	51.4	27	73	0.117
Not working	8	21.6	3	8.1	
Retired	10	27	7	18.9	

AUD: alcohol use disorder, n: number, %: column percentage

Clinical Characteristics of Participants

No participants in the control group had a history of hospitalization, suicide attempts, and substance use. The use of cigarettes and the history of alcohol abuse in the family were more prevalent in the patient group (p < 0.001 and p = 0.006, respectively). The clinical features are shown in Figure 1.

Evaluation of the DERS of Participants

The median value of the DERS total score of the patient group was 104 (68–171), which was significantly higher than the median value of the

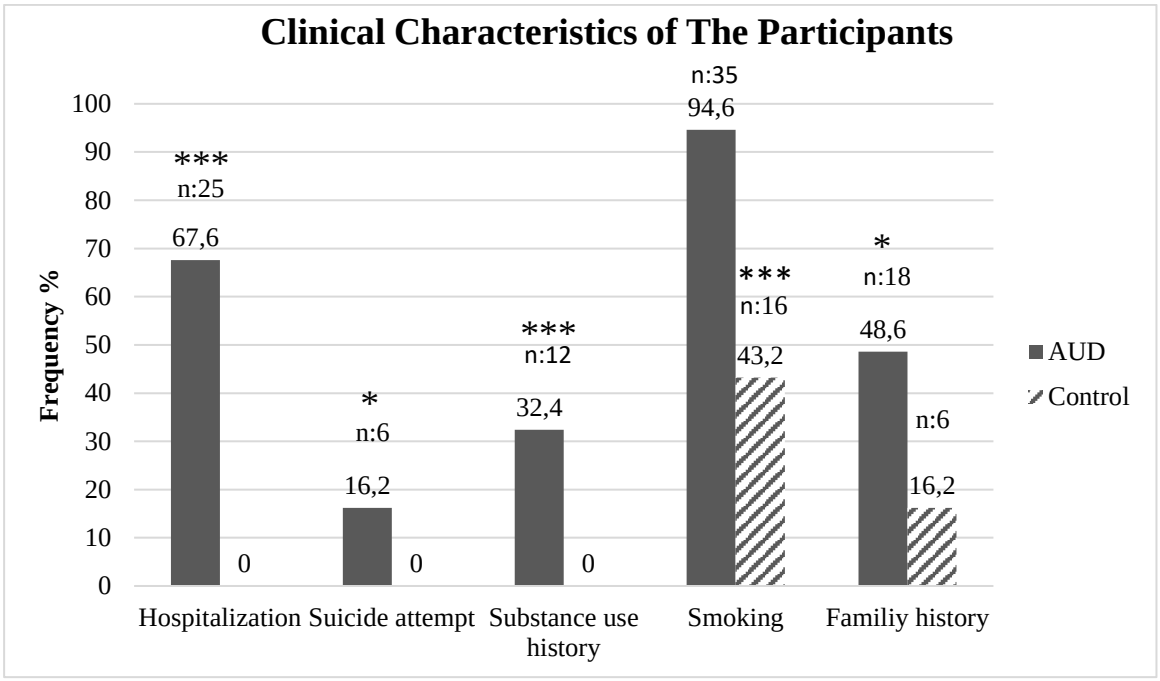

Figure 1. Frequency of the clinical characteristics of the participants. *Statistically significant difference between groups at $p < 0.05$; ***Statistically significant difference between groups at $p < 0.001$; Chi-square test

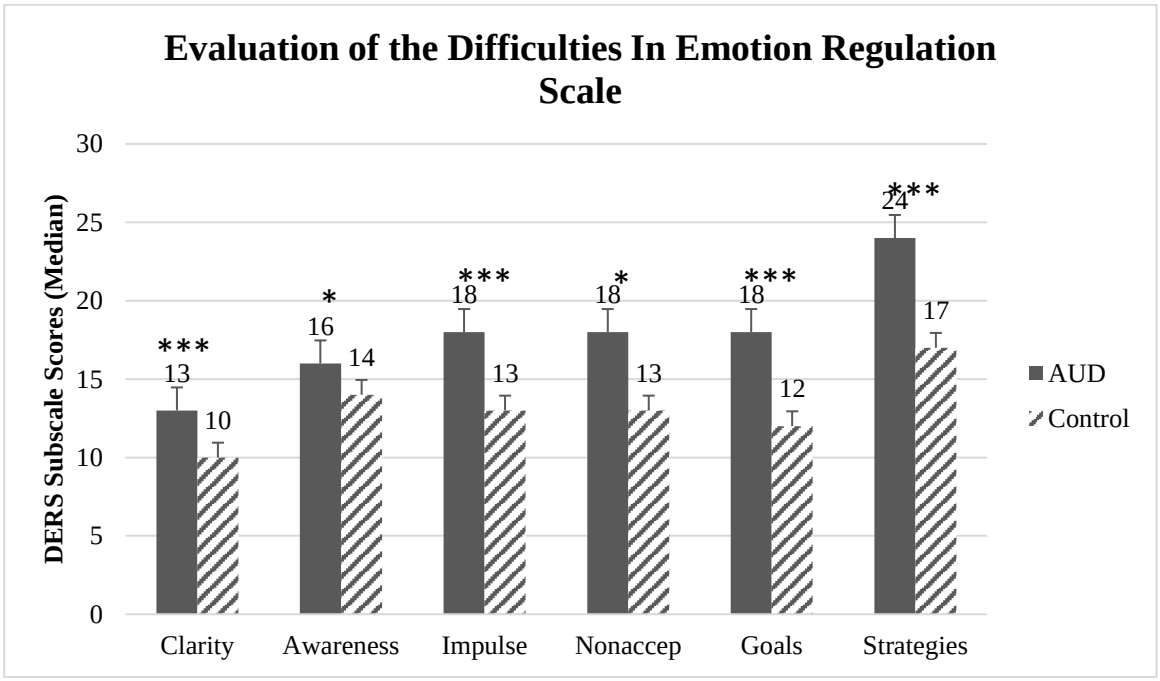

Figure. 2. Evaluation of the Difficulties in Emotion Regulation Scale (DERS). *Statistically significant difference between groups at $p < 0.05$; ***Statistically significant difference between groups at $p < 0.001$; Mann-Whitney U test.

control group [83 (51–173)] ($p < 0.001$). The AUD group's clarity13.0 (6–25), awareness 16.0 (11–30), impulse 18.0 (6–30), nonacceptance 18.0 (8–30), goals 18.0 (5–25), and strategies 24.0 (12–40) median (min–max) scores were respectively, and the median (min–max) scores

of the control group were clarity 10.0 (5–24), awareness 14.0 (6–25), impulse 13.0 (6–30), non-acceptance 13.0 (6–30), goals 12.0 (5–25), and strategies 17.0 (8–40) respectively. The AUD group's clarity, awareness, impulse, nonacceptance, objectives, and strategies median (min–max) scores were higher than the scores of the control group ($p < 0.001$, $p = 0.027$, $p < 0.001$, $p = 0.001$, $p < 0.001$, and $p < 0.001$, respectively). The DERS scores are summarized in Figure 2.

Evaluation of the CTQ Scale of Participants

The total CTQ score of the control group was 35 (26–76), and the total CTQ score of the patient group was 49 (25–89), which was significantly higher ($p < 0.001$).

The total CTQ score of the AUD group was 48.0 ± 9.7, whereas that of the control group was 37.3 ± 9.2. The median total CTQ (min–max) score of the AUD group was 49.0 (25–84), whereas that of the control group was 35.0 (26–76). The average values of emotional neglect 16.1 ± 5.4, physical neglect 5.9 ± 2, , sexual abuse 12.0 ± 4.6, , physical abuse 5.2 ± 1.3, and emotional abuse were 8.6 ± 3.9, in the AUD group and emotional neglect 10.4 ± 3.4, physical neglect 6.8 ± 3.7, sexual abuse 7.6 ± 2.8, physical abuse 5.6 ± 1.4 and emotional abuse were 6.1 ± 1.6 respectively in the control group. The median (min–max) values of emotional neglect 18.0 (5-24), physical neglect 10.0 (5-18), sexual abuse 5.0 (5-15), physical abuse 5.0 (5-25), and emotional abuse were 8.0 (5-25) in the AUD group and emotional neglect 12.0 (5–24), physical neglect 7.0 (5–18), sexual abuse 5.0 (5–13), physical abuse 5.0 (5–10) and emotional abuse were 5.0 (5–10) in the control group. The median emotional neglect, physical neglect, and emotional abuse values were significantly higher in the AUD group than in the control group ($p = 0.001$, $p < 0.001$, and $p < 0.001$, respectively). The median values of sexual abuse and physical abuse were the same. On the other hand, the average values of sexual abuse and physical abuse were higher in the AUD group than in the control group ($p = 0.014$ and $p = 0.031$, respectively). The results are summarized in Figure 3.

The prevalence of childhood traumas was higher in the AUD group than in the control group ($p < 0.05$). The frequencies of emotional neglect, physical neglect, sexual abuse, physical abuse, and emotional abuse were higher in the AUD group ($p = 0.005$, $p = 0.001$, $p = 0.024$, $p = 0.024$, and $p = 0.003$, respectively). Neglect experiences were the most frequent in the AUD and control groups. Emotional abuse was the most common type of abuse in the AUD group, and physical abuse was the most frequent type of abuse in the control group. The prevalence of childhood traumas is summarized in Figure 4.

Clinical Characteristics of AUD

The average age of the patients was 23.3 ± 8.7 years (13–51), the average alcohol use duration was 18.5 ± 10.8 years (3–45), the average amount of alcohol use was 71.3 ± 49.2 standard drinks

per week (6–210), the average duration of abstinence was 92.6 ± 203.1 days (10–912), and the average duration of remission was 24.5 ± 50.8 months (0–300).

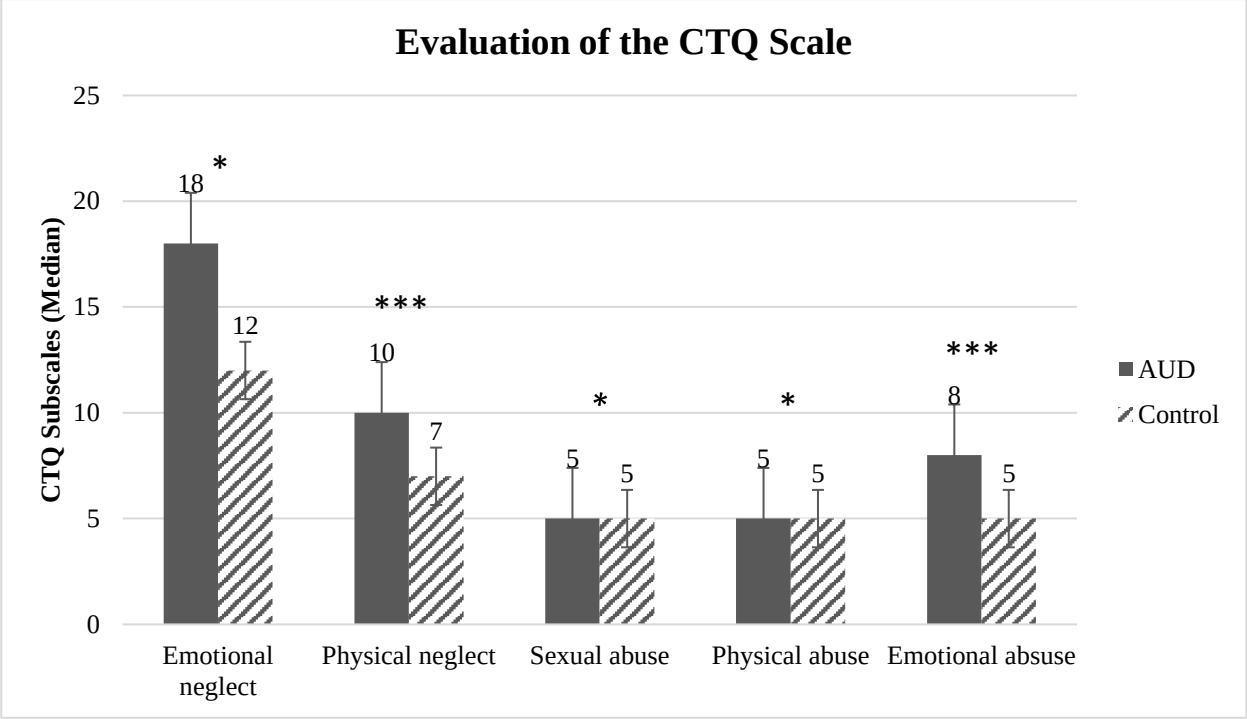

Figure 3. Evaluation of the CTQ scale. *Statistically significant difference between groups at $p < 0.05$; ***Statistically significant difference between groups at $p < 0.001$; Mann-Whitney U test.

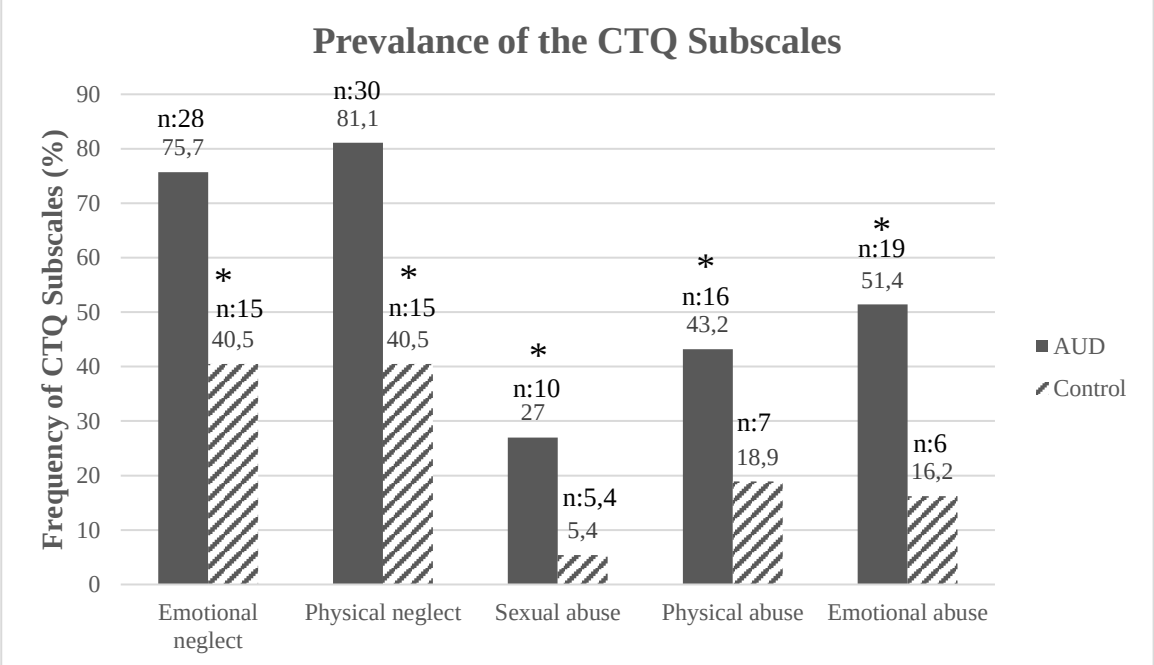

Figure. 4. Prevalance of the CTQ subscales. *Statistically significant difference between groups at $p < 0.05$; ***Statistically significant difference between groups at $p < 0.001$; Chi-square test.

Evaluation of Alcohol Addiction Severity

The SADQ-C score of the patients was 23.1 ± 13.5 (0–51). The severity of addiction was categorized as mild (32.4%), moderate (35.1%), and severe (32.4%).

Analysis of Correlation

The impulsivity subscale of DERS was positively correlated with the SADQ-C scores (r = 0.376, p = 0.022). In addition, impulsivity was correlated with the scores of physical abuses (r = 0.343, p = 0.037) and emotional abuse (r = 0.358, p = 0.030). The number of forensic cases was positively correlated with the awareness score (r = 0.673, p < 0.001). The score of goals was positively correlated with the duration of abstinence (r = −0.372, p = 0.023). The scores of objectives (r = 0.387, p = 0.018) and strategies (r = 0.391, p = 0.391) were positively correlated with emotional abuse. There was a significant positive correlation between SAQC-C scores and emotional abuse (r = 0.469, p = 0.003). The scores of physical neglect (r = 0.354, p = 0.031) and sexual abuse (r = 0.391, p = 0.017) showed a positive correlation with the number of suicide attempts.

Risk Factors for AUD

Logistic regression analysis was performed to evaluate the factors affecting AUD. DERS subscales and CTQ subscales were included in the model. Among the subscales, emotional abuse was identified as a risk factor for AUD (1.6 times higher risk) (p = 0.040). The risk factors of AUD are summarized in Table 3.

Table 3. Assessment of Alcohol Use Disorder (AUD) Risk Factors

	Beta	Odds ratio (95% CI)	p
Emotional neglect	0.116	1.123 (0.969–1.302	0.124
Physical neglect	−0.076	0.927 (0.713–1,205)	0.569
Sexual abuse	−0.171	0.843 (0.491–1.446)	0.534
Physical abuse	−0.221	0.803 (0.483–1.334)	0.396
Emotional abuse	**0.527**	***1.694* (*1.025–2.801)****	**0.040**
Clarity	0.110	1.117 (0.882–1.414)	0.360
Awareness	0.001	1.001 (0.827–1.212)	0.991
Impulse	0.200	1.222 (0.976–1.530)	0.081
Nonacceptance	0.039	1.040 (0.880–1.230)	0.647
Goals	0.048	1.049 (0.857–1.284)	0.644
Strategies	−0.180	0.835 (0.696–1.001)	0.052

Logistic regression analysis, * = *p < 0.005, model of p = 0.038.*

DISCUSSION

We examined the associations of emotion regulation difficulties and childhood traumas with alcohol use severity in a sample of patients and healthy volunteers. As expected, patients with AUD had more emotion regulation difficulties and childhood traumas (Fig. 2-3). The patients had difficulties in all of the six domains of emotion regulation.

The results showed that individuals with AUD exhibited limited access to emotion regulation strategies perceived as effective, difficulties engaging in goal-directed behaviors, difficulties in controlling impulses, and nonacceptance of emotional responses. Consistent with the primary hypothesis, there was a significant association between difficulties controlling impulsive behaviors and alcohol use severity. The literature suggests that a variety of emotion regulation difficulties, which emerge in AUD, could lead to difficulties in relationships, poor prognosis, worse treatment outcomes, and relapse (21). Maladaptive emotion regulation strategies have been linked to addiction severity and minimal positive affects (22). Furthermore, cross-sectional studies of emotion regulation have identified a relationship between addiction severity and the greater use of maladaptive emotion regulation strategies (4).

Emotion regulation strategies in alcohol-dependent patients include a higher response modulation and lower cognitive change. Cognitive change has been associated with greater positive effects, better interpersonal functioning, and greater well-being, and the use of response modulation has been associated with lower emotional functioning (23). In some studies, cognitive change has been linked to prolonged excessive alcohol drinking, which causes prefrontal impairment, affecting the neural region of emotion regulation (24). The prefrontal cortex is also the origin of impulse regulation. Therefore, addicted individuals may have higher impulsivity, which is linked to maladaptive emotion regulation strategies. Studies have revealed that the subdomains of impulsivity such as cognitive, attentional, and motor impulsivity are higher among individuals with AUD than among healthy individuals, and persistent impulse-related problems during abstinence may render patients susceptible to poor decision-making and increased vulnerability to relapse (25). Ethanol results in structural and functional impairments in the frontal cortex and consequently deteriorates emotional and behavioral regulation (26). Consistent with the literature, we found that impulsivity (the subdomain of emotion regulation strategies) was associated with addiction severity. These results provide robust evidence that emotion regulation difficulties could be higher in cases of alcohol use in adults compared with healthy controls, and impulsivity may explain at least some of the features of addiction severity.

There was a negative correlation between the duration of abstinence and score of goals. In this case, it can be assumed that if there is a problem in the DERS (goals), the duration of abstinence could be decreased. Based on the literature, we did not find any data showing the relationship between the subscale areas of the DERS and the duration of abstinence.

The second hypothesis of this study was that childhood traumas may contribute to emotion

regulation difficulties in AUD. The frequencies of childhood traumas, emotional abuse, physical abuse, sexual abuse, physical neglect, and emotional neglect were higher among patients with AUD than among healthy controls. The most prevalent childhood traumas were emotional neglect, physical neglect, and emotional abuse. These types of childhood traumas have been reported to be highly prevalent among alcohol-dependent patients, and a history of childhood trauma could have an effect on the development, severity, and course of AUD (10). Accordingly, individuals may consume alcohol or other substances to cope with psychological distress and trauma experiences, thereby alleviating negative emotional states and evoking positive emotions (27). The self-medication hypothesis can explain the relationship between emotion and trauma. A previous study found that compared with healthy controls, children who have experienced neglect or some kind of abuse are less able to understand negative emotions and exhibit fewer adaptive emotion regulation skills (1). Therefore, childhood maltreatment may result in maladaptive emotion regulation strategies, which are closely associated with addiction severity.

The childhood trauma profiles of patients were significantly associated with specific dimensions of emotion regulation strategies. We found that emotional abuse correlated with engagement in goal-directed behaviors and emotion regulation strategies. Furthermore, physical and emotional abuse was associated with impulsivity, which is defined as a dimension of emotion regulation strategies. The correlational findings implicated emotion dysregulation as a mediating mechanism in the association between childhood maltreatment and AUD. This finding suggests that there might be a common underlying factor between the dimensions of childhood traumas and emotion regulation strategies.

We also found a significant association between the number of suicides attempts and the sexual abuse and physical neglect scores. Self-harm behaviors such as suicide attempts have been reported to be more frequent among these individuals with AUD (28). In addition, impulsivity has been reported to be associated with suicide attempts in AUD (21). These clinical factors may be related to alcohol addiction severity.

The third hypothesis of the current study attempted to explain the severity of alcohol use, which may be associated with certain types of emotion regulation strategies and childhood traumas. The results demonstrated that addiction severity was correlated with impulsivity, emotion regulation difficulties, and childhood emotional and physical abuse. Several studies have reported that childhood traumas could increase the risk of alcohol dependence (29,30). Similarly, we identified childhood traumas such as emotional abuse as a risk factor for AUD, which increased the risk by 1.6-fold.

This study has some limitations, which include a small sample size, a predominantly male sample, cross-sectional measurements, and reliance on self-report measures. In addition, cognitive and emotional skills were not evaluated concurrently for emotion regulation strategies. Follow-up studies may be considered for further investigation of emotion regulation difficulties in AUD.

CONCLUSION

As expected, our results showed the higher maladaptive strategies of patients with AUD compared with healthy volunteers. Patients with AUD experienced more childhood traumas. Particularly, emotional abuse increased the risk of AUD. As a result, childhood traumas were more severe in patients with AUD, and they adversely affected emotion regulation strategies and increased the severity of addiction.

ACKNOWLEDGMENTS

First, we would like to thank our nurse of ROP unit, Merve Şura Yayla, for her great sacrifice in the operation of the CEKUS reports. We would also like to thank the director of Public Health Services of Ordu Provincial Health Directorate dealing with the CEKUS unit, Fatih Aydın, MD, for taking responsibility for the follow up of babies that were not brought in. Finally, we would like to thank all the CEKUS team and family physicians who ensured the referral of all patients to the ROP unit.

Ethics Committee Approval: Ethics committee approval was received for this study from Çanakkale Onsekiz Mart University School of Medicine (2016/27)

Peer-review: Externally peer-reviewed.

Author Contributions: Concept: AG, DGO; Design: AG, DGO; Literature search: AG,DGO; Data Collection and Processing: AG,DGO,DDO; Analysis or Interpretation AG,DGO,DDO; Writing: AG, DGO,DDO.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors also decline any financial support neither from any pharmaceutical company, nor from a company that provides or produces medical instruments and materials.

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