



The investigation of the mediating role of coping strategies on the relationship between childhood traumas, depression and alcohol use disorder in university students

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ABSTRACT

The aim of this study is to investigate the mediating effect of coping strategies on the relationship among childhood traumas, depression, and alcohol use disorder in university students. The participants of this study consisted of 735 (209 males and 526 females) university students. Participants completed measures of depressive symptoms, childhood traumas, problematic alcohol consumption, and coping strategies as well as a socio-demographic information form. According to results, coping strategies fully mediated the relationship between childhood traumas and alcohol use disorder, and partially mediated the relationship between childhood traumas and depression.

1. Introduction

Trauma is characterized by terrible and distressing events, in which there is an actual death or death threat, a threat to physical or vital integrity; and that one cannot overcome with the current coping strategies when faced with stressful situations (APA, 2008). According to APA (2008), traumatic events include sexual abuse, physical abuse, domestic violence, community and school violence, medical trauma, motor vehicle accidents, acts of terrorism, war experiences, natural and human-made disasters, suicides, and other traumatic losses. Traumatic events have been associated with various adverse physical and psychological effects on people such as anxiety, depression, alcohol and substance use, suicide and post-traumatic stress disorder (Ozturk, 2017).

Research has found that individuals may feel desperate and weak during traumatic processes, and traumas affect people's bonding, perception, and coping skills (Herman, 1992). Ozturk (2003) stated that childhood traumas experienced at early ages leave deeper traces than the traumas people encounter in later periods of their lives. According to the author, childhood traumas significantly hinder individuals' adaptation capacities, problem solving, and coping skills when they are exposed to stressful events.

Sexual, physical, emotional abuse and/or emotional, physical neglect are associated with childhood traumas (Bernstein et al., 1994).

Neglect and/or abuse play a facilitating role in terms of problems in children's cognitive, social, emotional developments and negative behaviors (Bifulco, Moran, Baines, Bunn, & Stanford, 2002). Children can seek different and undeveloped defense mechanisms against traumas; and when they are unable to use them effectively, they may encounter countless problems in their social relationships and mental health later on (Finzi-Dottan & Karu, 2006). Childhood experiences also affect people negatively in adulthood. Neglect and abuse can lead to problems in later years.

Banducci, Hoffman, Lejuez, and Koenen (2014) determined in their research that sexually abused people in childhood have sexual behavior disorders; physically abused ones show aggressive behaviors; and emotionally abused people have disorders related with emotion regulation functions. People with a history of trauma in their childhood also have a high risk of developing mental illness in their adulthood (Goodman, Rosenberg, Mueser, & Drake, 1997; Mandelli, Petrelli, & Serretti, 2015).

Many studies have looked at the relationship between childhood traumas and psychopathology. Studies on depression (Bradley et al., 2008; Heim, Newport, Mletzko, Miller, & Nemeroff, 2008; Mandelli et al., 2015; Vythilingam et al., 2002; Wiersma et al., 2009), borderline personality disorder (Porter et al., 2020; Quenneville et al., 2020), psychosis (Stanton, Denietolis, Goodwin, & Dvir, 2020; Hardy, van de

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Giessen, & van den Berg, 2020), post-traumatic stress disorder (Hardy et al., 2020; Lee, Yu, & Kim, 2020), and alcohol and substance use disorders (Roy, 1999; Wand et al., 2020) are the most common.

A negative life experience may not have the same effect on every person. Emotions, thoughts, and behaviors of the person related to the event should be taken into consideration to define an event as a “trauma”. In other words, the subjective meanings of the events are the determinants of their traumatic value. The perception and the results of a potentially traumatic event may vary in terms of gender, race, and culture (Breslau, Davis, Andreski, Peterson, & Schultz, 1997). Responses to traumatic events may differ because of these subjective perceptions of traumatic events. While some people use alcohol consumption, tobacco, and/or drugs as a coping mechanism (Roy, 1999; Wand et al., 2020), others may prefer to withdraw and distance themselves from the external world that they perceive to be threatening (Vythilingam et al., 2002; Wiersma et al., 2009). In addition to these reactions, a person’s internal resources have great importance when dealing with difficulties. Personality, upbringing, psychological resilience, and functionality of problem-solving skills affect the extent of the damage related to the problems encountered.

Childhood traumas can be relived with the smallest trigger and have long lasting effects on the individuals. Moreover, such traumatic memories may be associated with problems such as unhappiness, withdrawal, and suicidal thoughts. If individuals do not get treatment, traumas may predict depressive disorders (Goldsmith, Pellmar, Kleinman, & Bunney, 2002). A study investigating the relationship between childhood traumas and depression found that depression severity decreases when people accept negative events and face them (Hopfinger, Berking, Bockting, & Ebert, 2016). There are various potential mediators of the relationship between childhood traumas and negative outcomes, such as depression or alcohol use. However, few studies have sought to clarify this relationship (Hopfinger, Berking, Bockting, & Ebert, 2016). One study investigated psychological resilience and emotional regulation as they relate to the effects of childhood traumas and ways of dealing with these traumas; there have, however, not been enough studies to examine causal mechanisms (Hopfinger, Berking, Bockting, & Ebert, 2016).

Furthermore, various studies have investigated the relationship between childhood traumas and post-traumatic stress disorder (PTSD; Owen, 2020; Yehuda, Halligan, & Grossman, 2001), but research has not assessed the predictability of coping strategies on the outcomes related to trauma. Chasan (2010) supported the idea that people’s psychological and biological vulnerability increases as a result of childhood neglect and abuse, and that people consume more alcohol to reduce their stress. Traumatized people may use alcohol as a coping mechanism. Research has shown that coping skills are significant predictors of alcohol consumption (Bussey Rask et al., 2006) or, more specifically, avoidance coping strategies are found to be more significantly related with drinking (Hasking & Oei, 2007; McKee, Hinson, Wall, & Spriel, 1998). Stress may lead to more problematic alcohol consumption among people without any other adaptive methods for coping with stressful experiences (Corbin, Farmer, & Nolen-Hoekesma, 2013). According to the results of a study conducted by Maisto et al. (1999), people who were physically abused consumed alcohol to eliminate and reduce stress. Alcohol consumption reduces stress related to PTSD, and alcohol becomes a negative reinforcement among individuals with PTSD. As a result of this cycle, alcohol dependence may occur in these individuals.

Coping skills are also found to be predictors of treatment for alcoholism (Coriale et al., 2012). Moser and Annis (1996) compared the effects of active and avoidance copings strategies in a sample of treated alcoholics; active coping strategies were found to be more of a contributing factor than avoidance coping strategies for remaining abstinent. A more recent study from Litt, Kadden, Cooney, and Kabela (2003) also showed that one of the significant contributors to abstinence among problematic alcohol consumers is an increase in coping skills during treatment.

The aim of this study is, then, to investigate the mediating effect of

coping strategies on the relationship among childhood traumas, depression, and alcohol use disorder in university students.

2. Methods

2.1. Participants

The participants were 735 Turkish undergraduate students (209 males, 526 females) from different private (370 students) and public (365 students) universities in Antalya (23 students), Ankara (103 students), Istanbul (584 students), and Izmir (25 students). The university students were between 18 and 25 years of age (mean age 20.39 years). Among the participants, 726 were single and 9 of them were married. The study applied convenience sampling to select the participants and study staff explained the voluntary nature of participation prior to the distribution of the scales. The study staff embedded the scales into Google Docs and shared the related study link in social media groups in which university students were a part. Participants completed these online surveys on a voluntary basis without any incentives. The Ethics Committee of Bartın University Social and Human Sciences approved this study (approval no. 2019–221, date 25/11/2019).

2.2. Measures

This study used a sociodemographic information form, the Beck Depression Inventory (BDI), Childhood Trauma Questionnaire (CTQ), Alcohol Use Disorders Recognition Test (AUDIT), and Coping Response Inventory. The study obtained permission to use the scales, and the Turkish version of the Beck Depression Scale appears in *Frequently Used Instruments in Cognitive Behavioral Therapy* (Savasir & Sahin, 1997), which gives permission to use the scale (Savasir & Sahin, 1997).

2.2.1. Sociodemographic information

The research team developed a sociodemographic information form to obtain this information from participants (age, gender, marital status, and so on).

2.2.2. Alcohol use disorders recognition test (AUDIT)

The AUDIT is a widely used, structured, 10-item self-report measure of hazardous and harmful alcohol use. It was first developed in a World Health Organization (WHO) collaborative project across six countries by T.F. Babor, De la Fuente, Saunders, and Grant (1989). T.F. Babor, de JR, Saunders, and Grant (2001) developed the latest version. The AUDIT assesses frequency and quantity of alcohol consumption, including episodes of binge drinking, alcohol-related problems, and dependence symptoms. The measure identifies persons at risk of developing alcohol use disorder rather than identifying persons who meet criteria for alcohol dependence. The 10-item AUDIT uses ICD-10 criteria to detect patients with symptoms of alcohol dependence (3 items), harmful alcohol consumption (4 items), and hazardous alcohol consumption (3 items) (Volk, Steinbauer, Cantor, & Holzer III, 1997). The AUDIT is scored by summing the scores of each item. The maximum score is 40 and a cut-off of 8 or 9 is recommended as a sign of hazardous and harmful alcohol consumption. The AUDIT is internally consistent (α ranging from 0.80 to 0.94) and has shown good test-retest reliability ($r = 0.88$ over a 6-week period). The AUDIT was adapted into Turkish by Saatcioglu, Evren, and Cakmak (2002). Saatcioglu et al. (2002) demonstrated that the Turkish version of the AUDIT is a reliable and valid instrument. The internal consistency coefficient was 0.59 and 0.65 for each interviewer in the study. For each of the items, the corrected item-total correlation values in the instrument were higher than 0.30. The two interviewers showed a high interrater correlation ($r = 0.81$, $p < 0.001$), and kappa values for the items ranged between 0.21 and 0.61. The study found test-retest reliability of the scale to be significantly high ($r = 0.90$, $p < 0.001$). When evaluating the concurrent validity, they found a significant correlation between the Turkish form of the AUDIT

and the Michigan Alcohol Screening Test (MAST) ($r = 0.32, p < 0.05$). The current study found the Cronbach's alpha reliability coefficient to be 0.87.

2.2.3. Beck depression inventory (BDI)

The Beck Depression Inventory (BDI) developed by Beck et al. in 1961 rates the somatic, emotional, cognitive and motivational symptoms that are observed in cases of depression. The inventory contains 21 symptom categories. The highest possible score is 63. Higher total scores show higher levels of depression. Hisli adapted the inventory into Turkish in 1988. The scale is a widely used self-report scale for academic as well as clinical purposes. Hisli found that scores above 17 indicated clinical depression and that the split-half reliability of this version was 0.74 (Hisli, 1988). In the current study, the Cronbach's alpha reliability coefficient was 0.90.

2.2.4. Childhood trauma questionnaire (CTQ)

The CTQ is a 28-item, Likert-type, self-report instrument that Bernstein et al. (1994) developed that evaluates childhood emotional, physical, and sexual abuse; and childhood physical and emotional neglect. Possible scores for each type of childhood trauma range from 5 to 25. The sum of the scores derived from each trauma type provides the total score, which can range from 25 to 125. Cronbach's alpha for the factors related to each trauma type ranges from 0.79 to 0.94, indicating a high internal consistency. Sar, Ozturk, and Ikikardeş (2012) carried out a Turkish adaptation, validity and reliability study. That study found the Cronbach's alpha reliability coefficient to be 0.93; with the Guttman half test coefficient being 0.97. The scale also demonstrated good test-retest reliability over a 2- to 6-month interval (intraclass correlation = 0.88). In the current study, the Cronbach's alpha reliability coefficient was 0.91.

2.2.5. Coping response inventory (CRI)

Moos (1993) developed the Coping Response Inventory (CRI) specifically for adults to measure their coping strategies. The original scale consists of two parts, avoidance and approach responses, and a total of eight subscales. Ballı and Kılıç carried out a Turkish adaptation, validity and reliability study of the scale in 2016, which covered only one part (approach responses) and four subscales (positive reappraisal, logical analysis, guidance and support seeking, problem solving) of the scale. That study found the Cronbach's alpha reliability coefficient to be 0.90. This value shows that the scale is highly reliable. The Coping Response Inventory is rated as a 5-point Likert-type scale and possible options are: 1-Never, 2-Rarely, 3-Sometimes, 4-Mostly, and 5-Always. High scores on the scale indicate high levels of coping strategies. The current study found the Cronbach's alpha reliability to be 0.89.

2.3. Analyses

The current study used SPSS (Statistical Package for Social Sciences) for Windows 22.0 to analyze the findings of sociodemographic information form. Moreover, the study used Lisrel 8.80 for confirmatory factor analysis and structural equation modeling. As the first step, the study tested the measurement model as the necessity of phased approach. Then, the study assessed the relationship among the CTQ, AUDIT, and BDI; the relationship between CTQ and CRI; and the relationship among CRI, AUDIT and BDI. Moreover, the study investigated the mediating effect of CRI on the relationship among CTQ, AUDIT, and BDI in university students.

3. Results

The participants were 735 undergraduate students (209 males and 526 females; with the mean age of 20.39) from different private and public universities in Antalya, Ankara, Istanbul and Izmir. Among the participants, 726 were single and 9 of them were married (see Table 1).

Table 1
Descriptive statistics.

		N	%
Gender	Female	526	71.6
	Male	209	28.4
Marital Status	Single	726	98.8
	Married	9	1.2

Since the different regions were not equally represented in the samples, the study did not run statistical analyses to determine the differences among different regions.

There was a significant difference between women and men in terms of alcohol use disorder ($t(344.23) = 4.16; p < 0.05$). Alcohol Use Disorders Recognition Test scores for men ($M = 4.41$) were higher than for women ($M = 2.83$). However, there was not a significant difference between men and women in terms of depression, childhood trauma, and coping strategies (see Table 2).

3.1. Testing measurement model

The study used a total of four latent variables in the structural equation model testing: CTQ, CRI, BDI, and the AUDIT. BDI is a single dimensional scale and consists of 21 items. The study divided the items of the scale into three parcels to make the model more reliable. The study used the three parcels for BDI based on a simple thumb rule: the more items, the greater the number of parcels (Kishton & Widaman, 1994; MacCallum & Austin, 2000). Item parceling methodology normalizes the distribution of the observed variables and increases the reliability of these indicators. To create parcels that would function as indicators of the latent variables, the study ranked items according to the size of the item-total correlation, and the study summed sets of items. We chose to create multiple indicators with the aim of increasing the reliability of the latent variable.

Table 3 shows the path coefficients of the measurement model that was drawn before investigating the effect of the intermediary variable.

The findings of this study indicated that CTQ scores were moderately and positively correlated with BDI, but weakly and negatively correlated with CRI. CTQ scores were also positively and weakly correlated with AUDIT scores. CRI scores had a weak and negative correlation with AUDIT; and a moderate and negative correlation with BDI scores. In addition to this, the correlations between all latent variables in the model were all statistically significant ($p < 0.01$, see Table 3). Moreover, according to R^2 values in Table 3, BDI (0.33) and AUDIT (0.06) variables were mostly explained by CTQ.

We show the goodness of fit statistics for the measurement model in Table 4.

According to Table 4, χ^2/sd , RMSEA, CFI, GFI and SRMR yielded an acceptable fit; IFI yielded good fit to the data ($\chi^2/sd < 5$; RMSEA < 0.08; CFI > 0.90; IFI > 0.95; GFI > 0.90; SRMR < 0.08). Fig. 1 summarizes the full number of hypothesized relations between the latent variables.

Table 2
Independent sample *t*-test results.

	Women (<i>n</i> = 526)		Men (<i>n</i> = 209)		<i>t</i>	<i>p</i>
	\bar{X}	ss	\bar{X}	ss		
CTQ	83.31	6.72	82.27	7.23	-1.84	0.06
AUDIT	2.83	4.23	4.41	4.75	4.16	0.00*
BDI	17.16	9.53	17.55	10.21	0.50	0.61
CRI	88.84	13.84	88.46	14.03	-0.33	0.73

Note: $p^* < 0.01$; CTQ: Childhood Trauma Questionnaire; BDI: Beck Depression Inventory; CRI: Coping Response Inventory; AUDIT: Alcohol Use Disorders Identification Test.

Table 3

Factor loadings, t values, and intercorrelations of the latent variables for the measurement model.

Path	Standardized factor loadings	t-Value	R ²
CTQ → BDI	0.58	19.52*	0.33
CTQ → CRI	-0.27	-7.11*	0.07
CTQ → AUDIT	0.25	6.08*	0.06
CRI → AUDIT	-0.13	-3.22*	0.01
CRI → BDI	-0.40	-11.83*	0.16

Note: *p < 0.01; CTQ: Childhood Trauma Questionnaire; BDI: Beck Depression Inventory; CRI: Coping Response Inventory; AUDIT: Alcohol Use Disorders Identification Test.

Table 4

Results of goodness of fit statistics of measurement model.

Model	χ^2/sd	RMSEA	CFI	IFI	GFI	SRMR
Measurement Model	412.39/84	4.90	0.07	0.94	0.95	0.93

Note: N = 735; CTQ: Childhood Trauma Questionnaire; BDI: Beck Depression Inventory; CRI: Coping Response Inventory; AUDIT: Alcohol Use Disorders Identification Test; RMSEA = Root-Mean-Square Error of Approximation; GFI = Goodness-of-Fit Index; CFI = Comparative Fit-Index; SRMR = Standardized Root-Mean-Square Residual; IFI = Incremental Fit Index.

3.2. Testing structural model

The aim of the structural model was to test whether CTQ predicts BDI and AUDIT via the mediating effect of CRI. Table 5 presents an overview of the results from the structural model.

According to the values in Table 5, the effect of CTQ on AUDIT was not statistically significant ($t < 1.96; p > 0.05$). If we were to omit the path that this relationship created, the model may be somewhat improved. However, the effects of CTQ on BDI; and CRI on AUDIT and BDI were statistically significant.

Goodness of fit statistics for the structural model are given in Table 6.

According to Table 6, χ^2/sd , RMSEA and GFI resulted in a bad fit; CFI, IFI and SRMR resulted in acceptable fit to the data ($\chi^2/sd > 5$; RMSEA > 0.08; CFI > 0.90; IFI > 0.90; GFI < 0.90; SRMR < 0.08). Standardized parameter estimates of the structural model are represented in Fig. 2.

The path from CTQ to AUDIT was not statistically significant in the structural model. When we omitted the path that this relationship created, chi-square difference test statistics ($\chi^2 = 2.51 < 3.84; p > 0.05$) indicated that there was no significant difference between these models. The path from CTQ to AUDIT was not necessary for a better fit to the data, and, therefore, we could omit it from the model. Table 7 presents an overview of the results that the structural model produced when the

study omitted the path from CTQ to AUDIT.

Table 8 shows the results of goodness of fit statistics of the structural model when the study omitted the path from CTQ to AUDIT.

According to Table 8, χ^2/sd , RMSEA, GFI, and SRMR resulted in a bad fit; CFI, and IFI resulted in acceptable fit to the data ($\chi^2/sd > 5$; RMSEA > 0.08; CFI > 0.90; IFI > 0.90; GFI < 0.90; SRMR > 0.08). Standardized parameter estimates of the final version of the structural model are represented in Fig. 3.

These results suggested that the relationship between CTQ and AUDIT was fully mediated by CRI; and the relationship between CTQ and BDI was partially mediated by CRI.

4. Discussion

This research focused on the mediating role of coping strategies in the relationship among childhood traumas, depression, and alcohol use disorder. The results of the study suggested that coping strategies fully mediated the relationship between childhood traumas and alcohol use disorder and partially mediated the relationship between childhood traumas and depression. This means that if people with childhood traumas have high levels of adaptive and functional coping strategies, they will have a low incidence of depression or alcohol use disorders.

This study found that childhood traumas were significantly associated with depression (see Table 3). Parallel to our finding, Danese

Table 5

Factor loadings, t values, and intercorrelations of the latent variables for the structural model.

Path	Standardized factor loadings	t-value	R ²
CTQ → BDI	-0.50	-10.82*	0.25
CTQ → CRI	0.38	8.21*	0.14
CTQ → AUDIT	-0.08	-1.53	0.00
CRI → AUDIT	-0.20	-4.35*	0.04
CRI → BDI	-0.25	-6.23*	0.06

Note: *p < 0.01; N = 735; CTQ: Childhood Trauma Questionnaire; BDI: Beck Depression Inventory; CRI: Coping Response Inventory; AUDIT: Alcohol Use Disorders Identification Test.

Table 6

Results of goodness of fit statistics of the structural model.

Model	χ^2/sd	RMSEA	CFI	IFI	GFI	SRMR
Structural model	613.33/72	8.51	0.10	0.91	0.91	0.89

Note: N = 735; RMSEA = Root-Mean-Square Error of Approximation; GFI = Goodness-of-Fit Index; CFI = Comparative Fit-Index; SRMR = Standardized Root-Mean-Square Residual; IFI = Incremental Fit Index.

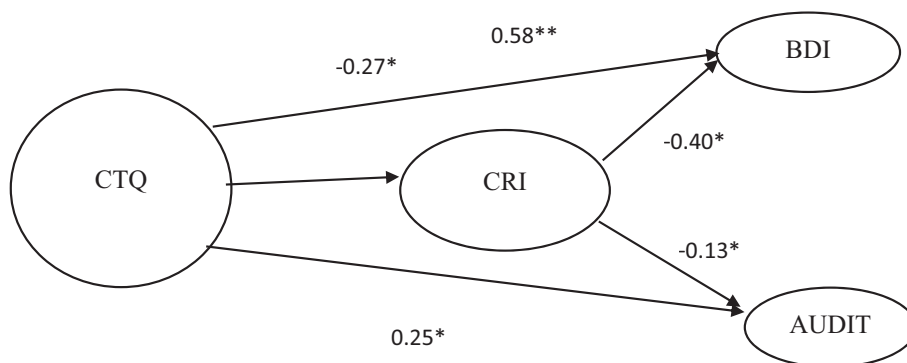


Fig. 1. Standardized parameter estimates of the measurement model.

Note: *p < 0.01; CTQ: Childhood Trauma Questionnaire; BDI: Beck Depression Inventory; CRI: Coping Response Inventory; AUDIT: Alcohol Use Disorders Identification Test.

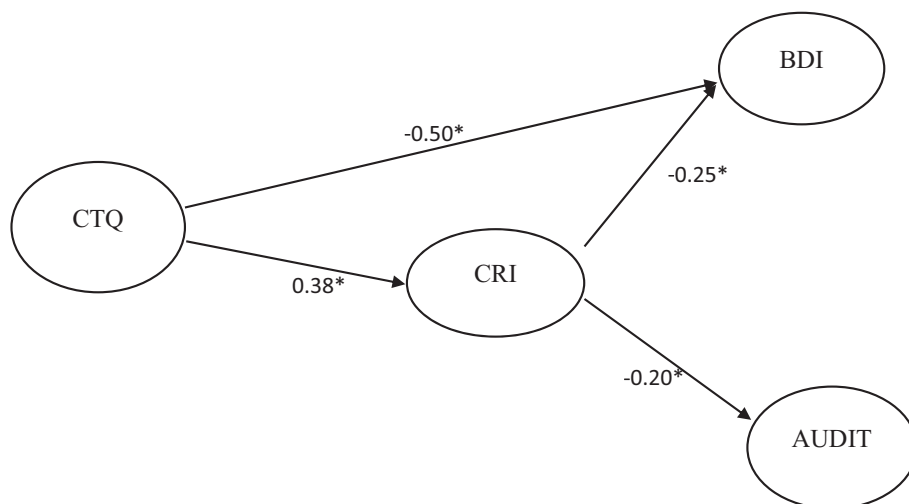


Fig. 2. Standardized Parameter estimates of the structural model.

Note: * $p < 0.01$ CTQ: Childhood Trauma Questionnaire; BDI: Beck Depression Inventory; CRI: Coping Response Inventory; AUDIT: Alcohol Use Disorders Identification Test.

Table 7

Factor loadings, t values, and intercorrelations of the latent variables for the structural model when the path from CTQ to AUDIT was omitted.

Path	Standardized factor loadings	t-Value	R ²
CTQ → BDI	-0.50	-10.69*	0.25
CTQ → CRI	0.38	8.21*	0.14
CRI → AUDIT	-0.23	-5.66*	0.05
CRI → BDI	-0.25	-6.32*	0.06

Note: * $p < 0.01$; N = 735 CTQ: Childhood Trauma Questionnaire, BDI: Beck Depression Inventory; CRI: Coping Response Inventory; AUDIT: Alcohol Use Disorders Identification Test.

Table 8

Results of goodness of fit statistics of structural model when the path from CTQ to AUDIT was omitted.

Model	χ^2/sd	RMSEA	CFI	IFI	GFI	SRMR
Structural Model	615.84/73	0.10	0.90	0.91	0.89	0.08
	8.43					

Note: N = 735; CTQ: Childhood Trauma Questionnaire; BDI: Beck Depression Inventory; CRI: Coping Response Inventory; AUDIT: Alcohol Use Disorders Identification Test; RMSEA = Root-Mean-Square Error of Approximation; GFI = Goodness-of-Fit Index; CFI = Comparative Fit-Index; SRMR = Standardized Root-Mean-Square Residual; IFI = Incremental Fit Index.

(2020) found that childhood traumas are among the risk factors for psychopathology, and depression is one of the psychopathological disorders related to childhood traumas. Many studies have found such associations between the two variables. In the Netherlands, a study that looked at the relationship between chronic depression and childhood traumas found that childhood traumas are related to depression in adulthood, and they might be the risk factor for a more chronic course of depression (Wiersma et al., 2009). When chronic depression remains untreated, it can lead to lifelong problems for people. However, research needs to establish whether trauma has a causal role, and if so, what the processes are that link the trauma to depression.

Hill (2003) has suggested that research needs to determine the causal effect of childhood traumas on depression and clarify the processes linking trauma to depression. Mandelli et al. (2015) conducted a meta-analysis to evaluate childhood traumas as a risk factor in the onset of depression in adults. Their meta-analysis determined that neglect and emotional abuse are related to a great extent to depression. Various

other studies have looked at the relationship between depression and child sexual abuse (Hill, 2003; Vythilingam et al., 2002). Some studies have found that childhood traumas not only cause depression, but the depression causes brain damage. Childhood trauma is related to glucocorticoid resistance, increased central corticotrophin-releasing factor activity, and reduced hippocampal volume closely paralleling some of the neuroendocrine features of depression (Heim et al., 2008). The findings from these studies indicate how significant traumas in early life can be.

Another variable of interest in our research is alcohol use disorder in youths with childhood traumas. According to the results of our study, there was a significant relationship between childhood traumas and alcohol use disorder (see Table 3). The relationship between childhood traumas and alcohol use has been previously well-studied; our results demonstrate this relationship again. Wang et al. (2020) divided 1534 subjects into three age groups and examined their demographic data, conditions from which their mothers suffered during pregnancy, and the babies at birth. The study found that levels of alcohol use were high in people who had experienced childhood trauma. Emotionally and physically abused people showed a statistically higher prevalence of lifetime alcohol use disorders. Another study (Roy, 1999) divided participants into euthymic depressed alcoholics and never depressed alcoholics to understand the relationship between childhood trauma and depression in male alcoholics. The results of that study showed that euthymic depressed alcoholics experienced significantly higher rates of childhood emotional abuse, physical abuse, sexual abuse, and emotional neglect. In that study, childhood trauma was correlated with depression in male alcoholics.

Another study investigated the relationship among childhood traumas, functional brain connectivity, executive dysfunction, and the risk of drinking in adolescence. It found that childhood traumas were significantly related to executive dysfunctions (Silveira et al., 2020). According to this study, childhood traumas can trigger alcohol use disorder not only in adulthood but also in an earlier period of life, such as adolescence.

We also investigated the relationship between coping skills and childhood traumas in our study and found that childhood traumas were significantly related to coping skills (see Table 3). Coping means voluntary efforts to regulate one's cognitive, behavioral, emotional, or physiological responses to a stressor or toward the stressor itself (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001). Even though there have been many studies about the relationship among childhood traumas, depression, and alcohol use, there have not been

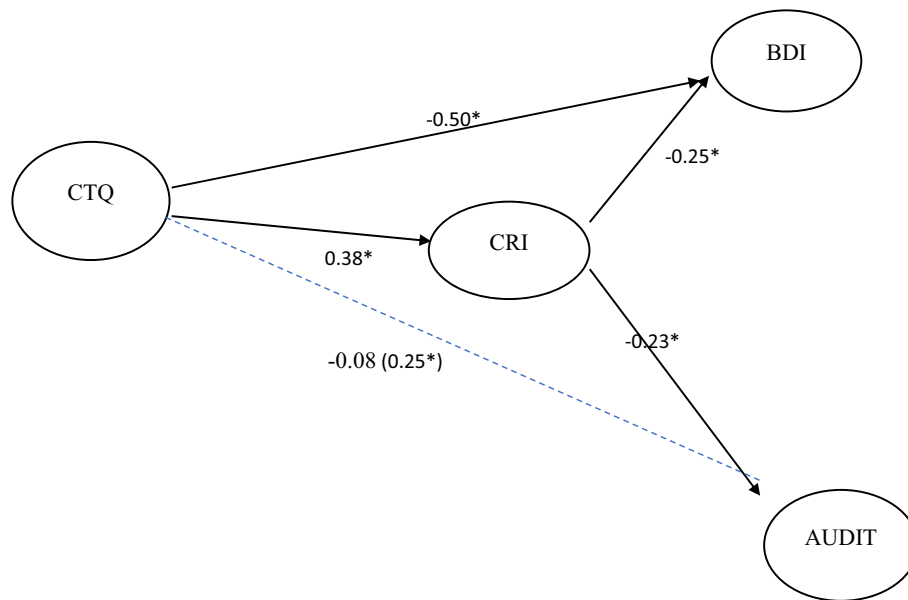


Fig. 3. Standardized parameter estimates of the structural model.

Note: * $p < 0.01$; CTQ: Childhood Trauma Questionnaire; BDI: Beck Depression Inventory; CRI: Coping Response Inventory; AUDIT: Alcohol Use Disorders Identification Test.

many studies that have examined the mediating role of coping strategies in this relationship. According to a study conducted by Coiro, Bettis, and Compas (2017), students who had interpersonal stress felt more depression, anxiety, and somatization. They also reported less use of engagement coping strategies.

This study also found coping skills to be significantly related to depression and alcohol use disorder (see Table 3). Coping strategies, including efforts to regulate emotions in response to stress, are the key mechanisms linking perceived stress and stressful life events to the development of mental health problems (Aldao, Nolen-Hoeksema, & Schweizer, 2010). Research has shown that there are significant associations between maladaptive coping/emotion regulation strategies (rumination, avoidance, suppression) and higher levels of four types of psychopathology (i.e. symptoms of anxiety, depression, eating disorders, and substance use).

Coping strategies play an effective role in the relationship between childhood traumas and their negative outcomes (MacDonald et al., 2016). Childhood traumas may predict depression and alcohol use disorder as well as other psychopathologies. One important question for research is related to causality: “How do the possible consequences of childhood trauma vary from person to person?” Another question may be: “How does a person avoid the negative consequences of childhood traumas?” Research has shown that a person’s internal resources have great importance when dealing with difficulties. In one study, the authors found adolescent smoking or alcohol use to be associated with attachment to family and friends, stress, depression, and health concerns (Tyas & Pederson, 1998).

This study found that childhood traumas and alcohol use disorder were fully mediated by coping skills; and the relationship between childhood traumas and depression was partially mediated by coping skills (see Fig. 3). Chasan (2010) suggested that childhood neglect and abuse were associated with significant increases in alcohol consumption. Alcohol served as a supportive mechanism to reduce stress. Moran, Vuchinich, and Hall (2004) stated that emotional abuse is an important predictor of alcohol use. Umeda et al. (2012) found that childhood neglect and abuse may lead to a blunted affect and withdrawal from social life in adulthood. If people do not express their emotions implicitly and feel lonely, their alcohol use can increase. According to Botvin, Griffin, Paul, and Macaulay (2003), when people experience

many psychosocial problems in their lives and do not cope with them, alcohol use disorders increase. DiClemente (2007) found that individuals use alcohol as a coping strategy and alcohol dependence can develop. One study found greater use of avoidant coping to be related to increased substance use and greater psychological distress (Min, Farkas, Minnes, & Singer, 2007). These studies point to a significant relationship between the use of nonfunctional coping strategies and alcoholism. Therefore, childhood traumas may play a predictive role in alcohol use disorders because of the use of nonfunctional coping strategies among those who have experienced a childhood trauma.

Heim et al. (2008) reported that childhood neglect and abuse increase sensitivity to stress and this can lead to depression. Traumatic situations can disrupt individuals’ mental balance and make them more vulnerable to the problems they face. Individuals with a traumatic history need more social support and if they do not get enough support, they may use maladaptive coping strategies to deal with the traumatic event. Maurex et al. (2010) stated that depression leads to a decrease in motivation and affects planning, action-taking, and solution-seeking. If people do not develop and use functional coping strategies, they may develop depressive disorders. If childhood trauma is a predictor of depression and maladaptive coping strategies, people who instead develop adaptive, functional, and effective coping strategies may protect themselves against depressive disorders.

4.1. Limitations

We should note several limitations of the current study. First, and most important, is the study’s correlational nature. Although the study used sophisticated analysis techniques, the causal directions among the constructs are only theoretical, and should be subjected to further stringent testing, either in an experimental design, or by using longitudinal data. Second, we conducted this study with 735 undergraduate students and the generalizability of the results to other age groups is limited. Future studies should investigate the similarities and differences between university students (namely early adults) and other age groups.

Last, the generalizability of the findings may also be limited due to a potential bias in the sample, as the participants are from the cities with the highest alcohol consumption levels in Turkey; namely Antalya,

Ankara, Istanbul, and Izmir. Research has found the Western Marmara, Istanbul, and Aegean regions to be the top three regions of Turkey, respectively, with the highest levels of alcohol consumption, with young adults, namely 25- to 34-year-olds, being those who most frequently consume alcohol (Buzrul, 2016). The cities that we included in this study host the majority of university students in Turkey. Future studies should include a wider and different scope of regions and take cultural differences into account when examining the relationships among the variables used in the current study. Doing so will allow for comparisons of the cultural effects of different regions on alcohol consumption.

4.2. Conclusion

The current study indicates that practitioners should focus on the role of childhood traumas in their work with adolescents and understand the trauma histories in the lives of university students who seek treatment for depression and substance use. Our results suggest that individuals with depression or alcohol use disorders should be treated with psychoeducation and psychotherapy related to their coping strategies. Interventions that promote the development of coping skills will benefit university students and may reduce or prevent substance use and psychological problems associated with childhood traumas. Additionally, supportive educational strategies for youths who have been abused and/or neglected in childhood can play an important role in the mental health of these youths. University campus' counseling centers should pay attention to students presenting with symptoms of depression and/or alcohol use disorders. To apply efficient interventions or therapeutic techniques, practitioners and treatment providers must understand the mediating role of trauma found in this study.

If the findings of the current study are taken into consideration in clinical settings, practitioners may be able to teach those who consume alcohol how to cope with the urge to drink. O'Malley (1995) showed that coping skills training correlates with a higher ability to avoid relapses among alcoholics. Corbin et al. (2013) point to restraint coping as the most protective coping skill against negative alcohol consumption.

The literature states that enhancing an individual's ability to tolerate negative emotions may have a significant impact on individuals with alcohol use disorder (Berking et al., 2011). Viewing depression as a trauma-based outcome and strategy for tolerating negative feelings may be important for treating those with alcohol use disorder. Huh, Kim, Lee, and Chae (2017) suggested that maladaptive strategies indirectly but significantly affected the relationship between childhood traumas (emotional abuse) and depression severity. Therefore, in summary, treatment that enhances coping skills is key for traumatized individuals with depression and alcohol use disorder.

References

- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review, 30*(2), 217–237.
- American Psychological Association (APA). (2008). *Children and trauma: Update for mental health professionals*. DC: Washington. Retrieved from <https://www.apa.org/pi/families/resources/children-trauma-update>.
- Babor, T. F., La Fuente de JR, Saunders J, Grant M. (2001). The alcohol use disorders identification test: Guidelines for use in primary care. Geneva, Switzerland: World Health Organization.
- Babor, T. F., De la Fuente, J. R., Saunders, J. B., & Grant, M. (1989). *AUDIT - The alcohol use disorders identification test: Guidelines for use in primary health care*. Geneva: World Health Organization, Division of Mental Health.
- Banducci, A. N., Hoffman, E. M., Lejuez, C. W., & Koenen, K. C. (2014). The impact of childhood abuse on inpatient substance users: Specific links with risky sex, aggression, and emotion dysregulation. *Child Abuse & Neglect, 38*(5), 928–938.
- Berking, M., Margraf, M., Ebert, D., Wupperman, P., Hofmann, S. G., & Junghanns, K. (2011). Deficits in emotion-regulation skills predict alcohol use during and after cognitive behavioral therapy for alcohol dependence. *Journal of Consulting and Clinical Psychology, 79*(3), 307.
- Bernstein, D. P., Fink, L., Handelsman, L., Foote, J., Lovejoy, M., Wenzel, K., ... Ruggiero, J. (1994). Initial reliability and validity of a new retrospective measure of child abuse and neglect (The American Journal of Psychiatry).
- Bifulco, A., Moran, P. M., Baines, R., Bunn, A., & Stanford, K. (2002). Exploring psychological abuse in childhood: II. Association with other abuse and adult clinical depression. *Bulletin of the Menninger Clinic, 66*(3), 241–258.
- Botvin, G. J., Griffin, K. W., Paul, E., & Macaulay, A. P. (2003). Preventing tobacco and alcohol use among elementary school students through life skills training. *Journal of Child & Adolescent Substance Abuse, 12*(4), 1–17.
- Bradley, R. G., Binder, E. B., Epstein, M. P., Tang, Y., Nair, H. P., Liu, W., ... Stowe, Z. N. (2008). Influence of child abuse on adult depression: Moderation by the corticotropin releasing hormone receptor gene. *Archives of General Psychiatry, 65*(2), 190–200.
- Breslau, N., Davis, G. C., Andreski, P., Peterson, E. L., & Schultz, L. R. (1997). Sex differences in posttraumatic stress disorder. *Archives of General Psychiatry, 54*(11), 1044–1048.
- Bussey Rask, M., Jørgensen, T., Pinnerup Jensen, J., Bech Jørgensen, K., Madsen, M., Nielsen, B., et al. (2006). Influence of pretreatment coping strategies on the outcome of outpatient treatment of Danish alcohol abusers. *European Addiction Research, 12*, 83–90.
- Buzrul, S. (2016). Türkiye'de alkollü içki tüketimi. *Food and Health, 2*(3), 112–122.
- Chasan, N. (2010). *Alkol bağımlılığı ile çocukluk çağı travmaları ilişkisi*. Maltepe Üniversitesi, Sosyal Bilimler Enstitüsü: Master's thesis.
- Coiro, M. J., Bettis, A. H., & Compas, B. E. (2017). College students coping with interpersonal stress: Examining a control-based model of coping. *Journal of American College Health, 65*(3), 177–186.
- Compas, B. E., Connor-Smith, J. K., Saltzman, H., Thomsen, A. H., & Wadsworth, M. E. (2001). Coping with stress during childhood and adolescence: Problems, progress, and potential in theory and research. *Psychological Bulletin, 127*(1), 87.
- Corbin, W. R., Farmer, N. M., & Nolen-Hoeksema, S. (2013). Relations among stress, coping strategies, coping motives, alcohol consumption and related problems: A mediated moderation model. *Addictive Behaviors, 38*(4), 1912–1919.
- Coriale, G., Bilotta, E., Leone, L., Cosimi, F., Porrari, R., De Rosa, F., & Ceccanti, M. (2012). Avoidance coping strategies, alexithymia and alcohol abuse: A mediation analysis. *Addictive Behaviors, 37*(11), 1224–1229.
- Danese, A. (2020). Annual research review: Rethinking childhood trauma-new research directions for measurement, study design and analytical strategies. *Journal of Child Psychology and Psychiatry, 61*(3), 236–250.
- DiClemente, C. C. (2007). Mechanisms, determinants and processes of change in the modification of drinking behavior. *Alcoholism: Clinical and Experimental Research, 31*, 13–20.
- Finzi-Dottan, R., & Karu, T. (2006). From emotional abuse in childhood to psychopathology in adulthood: A path mediated by immature defense mechanisms and self-esteem. *The Journal of Nervous and Mental Disease, 194*(8), 616–621.
- Goldsmith, S. K., Pellmar, T. C., Kleinman, A. M., & Bunney, W. E. (2002). *Reducing suicide: A national imperative*. National Academies Press.
- Goodman, L. A., Rosenberg, S. D., Mueser, K. T., & Drake, R. E. (1997). Physical and sexual assault history in women with serious mental illness: Prevalence, correlates, treatment, and future research directions. *Schizophrenia Bulletin, 23*(4), 685–696.
- Hardy, A., van de Giessen, I., & van den Berg, D. (2020). Trauma, posttraumatic stress, and psychosis: In a clinical introduction to psychosis. In 223–243. Academic: Press.
- Hasking, P. A., & Oei, T. P. S. (2007). Alcohol expectancies, self-efficacy and coping in an alcohol-dependent sample. *Addictive Behaviors, 32*, 99–113.
- Heim, C., Newport, D. J., Mletzko, T., Miller, A. H., & Nemeroff, C. B. (2008). The link between childhood trauma and depression: Insights from HPA axis studies in humans. *Psychoneuroendocrinology, 33*(6), 693–710.
- Herman, J. L. (1992). *Travma ve iyileşme*, (translated by: Tamer Tosun). İstanbul: Literatür Yayınları.
- Hill, J. (2003). Childhood trauma and depression. *Current Opinion in Psychiatry, 16*(1), 3–6.
- Hisli, N. (1988). Beck Depresyon Ölçeği'nin bir Türk örnekleminde geçerlilik ve güvenilirliği. *Psikoloji Dergisi, 6*, 118–122.
- Hopfinger, L., Berking, M., Bockting, C. L., & Ebert, D. D. (2016). Emotion regulation mediates the effect of childhood trauma on depression. *Journal of Affective Disorders, 198*, 189–197.
- Huh, H. J., Kim, K. H., Lee, H. K., & Chae, J. H. (2017). The relationship between childhood trauma and the severity of adulthood depression and anxiety symptoms in a clinical sample: The mediating role of cognitive emotion regulation strategies. *Journal of Affective Disorders, 213*, 44–50.
- Kishton, J. M., & Widaman, K. F. (1994). Unidimensional versus domain representative parceling of questionnaire items: An empirical example. *Educational and Psychological Measurement, 54*(3), 757–765.
- Lee, D., Yu, E. S., & Kim, N. H. (2020). Resilience as a mediator in the relationship between posttraumatic stress and posttraumatic growth among adult accident or crime victims: The moderated mediating effect of childhood trauma. *European Journal of Psychotraumatology, 11*(1), 1704563.
- Litt, M. D., Kadden, R. M., Cooney, N. L., & Kabela, E. (2003). Coping skills and treatment outcomes in cognitive-behavioral and interactional group therapy for alcoholism. *Journal of Consulting and Clinical Psychology, 71*, 118–128.
- MacCallum, R. C., & Austin, J. T. (2000). Applications of structural equation modeling in psychological research. *Annual Review of Psychology, 51*(1), 201–226.
- MacDonald, K., Thomas, M. L., Sciolla, A. F., Schneider, B., Pappas, K., Bleijenberg, G., ... Dannlowski, U. (2016). Minimization of childhood maltreatment is common and consequential: Results from a large, multinational sample using the childhood trauma questionnaire. *PLoS One, 11*(1), Article e0146058.
- Maisto, S. A., Carey, K. B., & Bradizza, C. M. (1999). Social learning theory. In K. E. Leonard, & H. T. Blane (Eds.), *Psychological theories of drinking of alcohol* (2nd edition, pp. 106–123).

- Mandelli, L., Petrelli, C., & Serretti, A. (2015). The role of specific early trauma in adult depression: A meta-analysis of published literature. *Childhood trauma and adult depression. European Psychiatry, 30*(6), 665–680.
- Maurex, L., Lekander, M., Nilsson, Å., Andersson, E. E., Åsberg, M., & Öhman, A. (2010). Social problem solving, autobiographical memory, trauma, and depression in women with borderline personality disorder and a history of suicide attempts. *British Journal of Clinical Psychology, 49*(3), 327–342.
- McKee, S. A., Hinson, R. E., Wall, A., & Spriell, P. (1998). Alcohol outcome expectancies and coping styles as predictors of alcohol use in young adults. *Addictive Behaviors, 23*, 1–22.
- Min, M., Farkas, K., Minnes, S., & Singer, L. T. (2007). Impact of childhood abuse and neglect on substance abuse and psychological distress in adulthood. *Journal of Traumatic Stress, 20*(5), 833–844.
- Moos, R. H. (1993). *Coping response inventory: CRI* (Psychologica Assessment Resources).
- Moran, P. B., Vuchinich, S., & Hall, N. K. (2004). Associations between types of maltreatment and substance use during adolescence. *Child Abuse & Neglect, 28*(5), 565–574.
- Moser, A. E., & Annis, H. M. (1996). The role of coping in relapse crisis outcome: A prospective study of treated alcoholics. *Addiction, 91*, 1101–1113.
- O'Malley, S. S. (1995). Current strategies for the treatment of alcohol dependence in the United States. *Drug and Alcohol Dependence, 39*(Suppl. 1).
- Owen, C. (2020). Obscure dichotomy of early childhood trauma in PTSD versus attachment disorders. *Trauma, Violence & Abuse, 21*(1), 83–96.
- Ozturk, E. (2003). *Childhood traumata in the first degree relatives of traumatized dissociative patients. Doctoral dissertation*. Istanbul: Istanbul University.
- Ozturk, E. (2017). *Travma ve dissosiyasyon: Dissosiyatif kimlik bozukluğunun psikoterapisi ve aile dinamikleri* (Nobel Tıp Kitabevi).
- Porter, C., Palmier-Claus, J., Branitsky, A., Mansell, W., Warwick, H., & Varese, F. (2020). Childhood adversity and borderline personality disorder: A meta-analysis. *Acta Psychiatrica Scandinavica, 141*(1), 6–20.
- Quenneville, A. F., Kalogeropoulou, E., Küng, A. L., Hasler, R., Nicastro, R., Prada, P., & Perroud, N. (2020). Childhood maltreatment, anxiety disorders and outcome in borderline personality disorder. *Psychiatry Research, 284*, 112688.
- Roy, A. (1999). Childhood trauma and depression in alcoholics: Relationship to hostility. *Journal of Affective Disorders, 56*(2–3), 215–218.
- Saatcioglu, O., Evren, C., & Cakmak, D. (2002). Alkol kullanım bozuklukları tanima testinin geçerliği ve güvenilirliği. *Türkiye'de Psikiyatri, 4*(2–3), 107–113.
- Sar, V., Ozturk, E., & İkikardeş, E. (2012). Validity and reliability of the Turkish version of childhood trauma questionnaire. *Türkiye Klinikleri Journal of Medical Sciences, 32* (4), 1054–1063.
- Savasir, I., & Sahin, N. (1997). *Frequently used instruments in cognitive behavioral therapy* (pp. 23–39). Ankara: Türk Psikologlar Dernegi.
- Silveira, S., Shah, R., Nooner, K. B., Nagel, B. J., Tapert, S. F., De Bellis, M. D., & Mishra, J. (2020). *Impact of childhood trauma on executive function in adolescence-mediating functional brain networks and prediction of high-risk drinking*. Biological Psychiatry: Cognitive Neuroscience And Neuroimaging.
- Stanton, K. J., Denietolis, B., Goodwin, B. J., & Dvir, Y. (2020). Childhood trauma and psychosis: an updated review. *Child and Adolescent Psychiatric Clinics, 29*(1), 115–129.
- Tyas, S. L., & Pederson, L. L. (1998). Psychosocial factors related to adolescent smoking: A critical review of the literature. *Tobacco Control, 7*(4), 409–420.
- Umeda, M., Kawakami, N., & World Mental Health Japan Survey Group 2002–2006. (2012). Association of childhood family environments with the risk of social withdrawal ('hikikomori') in the community population in Japan. *Psychiatry and Clinical Neurosciences, 66*(2), 121–129.
- Volk, R. J., Steinbauer, J. R., Cantor, S. B., & Holzer, C. E., III (1997). The alcohol use disorders identification test (AUDIT) as a screen for at-risk drinking in primary care patients of different racial/ethnic backgrounds. *Addiction, 92*(2), 197–206.
- Vythilingam, M., Heim, C., Newport, J., Miller, A. H., Anderson, E., Bronen, R., ... Nemeroff, C. B. (2002). Childhood trauma associated with smaller hippocampal volume in women with major depression. *American Journal of Psychiatry, 159*(12), 2072–2080.
- Wand, T., Collett, G., Cutten, A., Stack, A., Dinh, M., Bein, K., ... White, K. (2020). *Evaluating an emergency department-based mental health liaison nurse service: A multi-site translational research project*. Emergency Medicine Australasia.
- Wang, L., An, C. X., Song, M., Li, N., Gao, Y. Y., Zhao, X. C., ... Wang, X. Y. (2020). Evaluation of childhood traumatic experience as a risk factor for alcohol use disorder in adulthood. *BMC Psychiatry, 20*(1), 1–9.
- Wiersma, J. E., Hovens, J. G., van Oppen, P., Giltay, E. J., van Schaik, D. J., Beekman, A. T., & Penninx, B. W. (2009). The importance of childhood trauma and childhood life events for chronicity of depression in adults. *Journal of Clinical Psychiatry, 70*(7), 983.
- Yehuda, R., Halligan, S. L., & Grossman, R. (2001). Childhood trauma and risk for PTSD: Relationship to intergenerational effects of trauma, parental PTSD, and cortisol excretion. *Development and Psychopathology, 13*(3), 733–753.