Original article

Early emotional trauma in alcohol-dependent men: prevalence, associations and predictive value

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Abstract

Background: Several studies have indicated that early emotional traumas (EET) are highly prevalent in alcohol-dependent individuals, and that these traumas work as risk factors for the development of this disorder. **Objective:** The aim of the current study is to evaluate the EET associations and predictive value regarding active alcohol dependence among male individuals from a developing country. **Methods:** The sample consisted of two groups. The first was composed by adult male individuals diagnosed as alcohol dependents (AG, N = 110), and the second with no alcohol abuse and/or dependence diagnosis (CG, N = 110). Both groups were evaluated using Structured Clinical Interview based on the Diagnostic and Statistical Manual of Mental Disorders; Early Emotional Trauma Inventory; and a sociodemographic questionnaire. **Results:** All trauma subtypes (general, physical, emotional and sexual) were more prevalent among AG than CG. However, only traumas categorized as general and emotional worked as risk factor for alcoholism development and they increased the chances to develop this disorder by 1.45 and 1.23 times, respectively. **Discussion:** EETs are important factors that should be taken into account in interventions that aim to prevent, minimize and/or treat this clinical condition and its impact and/or severity, especially in countries such as Brazil.

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Introduction

It is known that alcohol consumption is quite significant worldwide: approximately two billion people consume this substance and 76.3 million of them show some disorder associated with alcohol abuse[1]. Considering these statistics, it is possible to assume that the impacts associated with this consumption habit are extremely negative and lead to a series of damages to both the alcohol-dependent individual and the society.

By investigating the factors that predispose individuals to alcoholism, it is possible to emphasize the following: genetic aspects[2], age[3-5], social influence[6], personality factors[7], the experience of early emotional trauma (EET)[8], among others.

The EETs refer to one or more traumatic events experienced from childhood up to 18 years of age. They may involve general and unexpected situations, such as witnessing natural disasters or living with parents that abuse on alcohol or drugs, as well as more specific situations, such as the experience of being physically, sexually or emotionally neglected and/or abused[9-11]. The literature has shown data regarding the association between alcoholism and EET.

Mirsal *et al.*[8] showed that the frequency of EET experienced by a sample comprising alcohol-dependent individuals (37.2% emotional abuse, 31.1% physical abuse; 11.1% sexual abuse) was significantly higher than that found in the group without such disorder (22.24% emotional abuse; 18.1% physical abuse; 3.1% sexual abuse). According to a different perspective, Fitzpatrick *et al.*[12] and Trent *et al.*[13] found that individuals who were victims of severe mistreatment during childhood showed very high alcoholism rates in adulthood, reaching up to 84%, depending on the type of EET they experienced.

Alcoholism risk factors associated with EET seem to differ between genders. Potthast *et al.*[14] conducted a study comprising individuals undergoing alcohol-dependence treatment. They pointed out that although the different types of traumas assessed in their study were alcoholism predictors, the emotional abuse experience was the main risk factor to predict alcohol dependence severity (ODDS = 4.33) among men. In addition, the studies by Elliott *et al.*[15] and by Fenton *et al.*[16], who also used clinical sample, emphasized that sexual abuse was the strongest alcoholism predictor (ODDS = 2.99; $p < 0.01$) among men.

Regarding the female gender, Magnusson *et al.*[17] highlighted the existence of a synergistic relationship between parental alcoholism and EET. Sexual abuse and emotional neglect worked as risk factors for alcoholism in women, but only when they had parental history of alcoholism. It indicates both genetic vulnerability and gender influence on the possible associations between EET and alcoholism. Thus, gender should be considered an independent variable within this context.

The previous literature indicates that the link between EET and alcoholism in adulthood may be explained by the fact that EETs favor a series of emotional regulation deficits. These deficits are related to difficulties in accepting and overcoming traumatic experiences, in realizing and/or expressing feelings, and in socially relating with partners, among others. Thus, alcohol may be used as a way to compensate or alleviate such damages. Accordingly, it is worth emphasizing the study by Cardinal *et al.*[18] who showed the association between experiencing EET and brain volume reduction in the *dorsomedial prefrontal cortex*. It is known that this region plays an important role in regulating emotional experiences[8,12,13]. In addition, Hong *et al.*[19] also indicated that the link between EET experience and emotional dysregulation may be explained by the fact that children who experience EET have difficulties in establishing and/or forming healthy relationships with their peers, as well as in acquiring social skills related to emotional regulation and social interaction. Hence, these children show compromised social relations in adulthood.

Thus, there seems to be no doubt about the solid relationship between alcoholism and EET. However, it is worth conducting studies on this issue, by evaluating a) the impact and associations of different traumatic situations; b) the samples from developing countries such as Brazil, where the socioeconomic conditions increase the vulnerability to experience EETs[20]; c) the specificities of the gender variable within this context.

Therefore, the aim of the current study is to evaluate the EET associations and predictive value regarding active alcohol dependence among male individuals from a developing country.

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Materials and methods

Sample

The sample in the current study comprised two distinct groups, namely:

a) The AG (alcohol-dependent group) comprised male individuals over 18 years old, who were recruited in the alcoholic liver disease treatment clinic of a university teaching hospital and diagnosed as alcohol dependent according to the criteria listed in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV).

b) The CG (control group) comprised male individuals over 18 years old, who were recruited among the general population, especially in primary health care services and in a non-governmental organization. These individuals had no alcohol abuse and/or dependence diagnosis, according to the DSM-IV criteria. The study aimed to pair the sociodemographic variables from both the CG and AG groups, namely: gender, age and education. The exclusion criterion adopted for both groups was the incorrect filling of the instruments. Figure 1 below shows the flowchart of the sample composition trajectory.

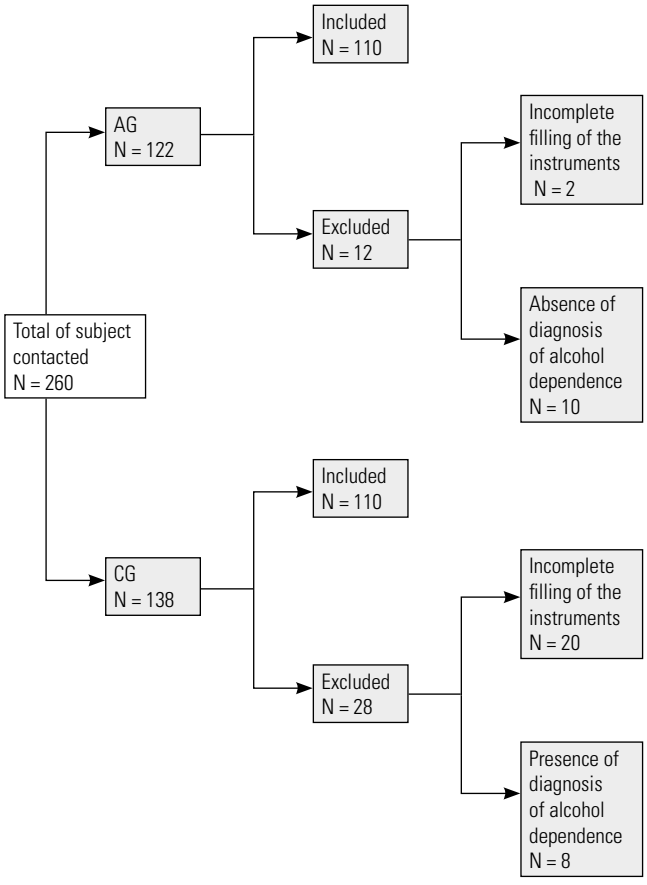

Figure 1. Flowchart of inclusion and exclusion of participants.

Instruments

The following instruments were used to assess the individuals:

A. Structured Clinical Interview based on the DSM-IV (SCID-IV): suggested by First *et al.*[21] and translated and adapted into Portuguese by Del-Ben *et al.*[22]. This instrument is used to make psychiatric clinical diagnosis based on the DSM-IV. The current study used the E module to perform alcohol abuse and/or dependence diagnostic investigation.

B. Early Trauma Inventory Self Report – Short Form (ETISR-SF): self-applied instrument composed of 27 items scored in "Yes" or "No" answers that evaluate trauma occurrence during childhood and adolescence. The current study used the Brazilian Portuguese version translated and validated by Osório *et al.*[23] The version presented 0.83 internal consistency (Cronbach's alpha) and test-retest reliability > 0.78.

C. Clinical and sociodemographic questionnaire: instrument developed for the current study. It aims to collect additional data on the sociodemographic and clinical features of the sampling group.

Data collection and analysis

The current study met the human research ethical parameters and was approved by the local Ethics Committee (HCRP Process n. 2316/2011).

Data were individually collected and inserted in a database. Subsequently, they were analyzed using a) descriptive statistics (analyses of the sampling group sociodemographic and clinical features); b) parametric statistics: Studen's t test (comparison between the groups); c) Pearson's correlation test (correlation of variables) and d) multivariate logistic regression – backward technique (predictive variable analysis – the variables showing $p < 0.20$ in the comparison between the groups were included in the initial model). The significance level was set at $p < 0.05$.

Results

The clinical sample had mean age of 53 years (SD = 8.24). Fifty-eight point two percent (58.2%) of the individuals were married and 83.6% of them had children. As for education, individuals with up to 8 years of education (56.4%) were prevalent. Regarding the control group, the mean age was 53 years and there was also the prevalence of married individuals (71.8%) with children (78.2%), and education level of up to 8 years (54.6%). Both groups did not statistically differ in these variables. However, it is noteworthy that the AG group presented higher inactivity rates regarding employment (56.4%) than the CG group (19%). This result was statistically significant ($p < 0.001$).

The mean number of doses the alcohol-dependent group consumed daily was 7.64 and the mean alcohol use time was 29.36 years. It is noteworthy that 77.3% of the individuals showed clinical alcoholic liver cirrhosis symptoms and 22.7% of them showed clinical liver disease symptoms.

The main data regarding the experienced EETs are presented in Table 1.

Table 1 shows that there were statistically significant differences between AG and CG in all trauma categories, and traumas were more often found in AG.

It is important to emphasize that 94% of AG individuals experienced some traumatic event during childhood. There was high co-occurrence rate of different EET types, since the average number of traumatic events was 8.39 (SD = 5.93) per individual.

Significant correlations were not observed ($p > 0.41$) when EET categories were correlated with alcoholism time and with the number of consumed doses. Accordingly, no significant correlation was observed by correlating the different trauma categories: General ($p > 0.11$), physical ($p > 0.09$), emotional ($p > 0.37$) and sexual traumas ($p > 0.09$).

Table 2 details the most frequent EET subtypes experienced by both groups.

It is observed that the traumatic situations in the "general" category were the most commonly found in the AG sample, especially in the case of situations involving witnessing the death and/or serious injury of a friend and/or caregiver. The sexual trauma category was less frequently experienced in both groups, but it still showed rates between 11 and 22% in AG. The groups did not show any differences only in three traumatic situations: severe accident, being slapped in the face, and being pushed.

Table 1. The frequency and percentage of different categories of early emotional traumas experienced by the sample, according to the alcoholic and control groups

Trauma categories		AG (N = 110)	CG (N = 110)	Statistics
General traumas	Mean (*SD*)	4.30 (3.20)	1.69 (1.85)	t = -7.390; $p < 0.001$*
	Minimum n.	0	0	
	Maximum n.	11	9	
	%	85.5%	63.6%	
Physical punishment	Mean (*SD*)	1.77 (1.89)	1.12 (1.32)	t = -2.931; $p = 0.004$*
	Minimum n.	0	0	
	Maximum n.	5	5	
	%	60.9%	52.7%	
Emotional traumas	Mean (*SD*)	1.31 (1.94)	0.60 (1.22)	t = -3.235; $p \leq 0.001$*
	Minimum n.	0	0	
	Maximum n.	5	5	
	%	30.9%	27.3%	
Sexual traumas	Mean (*SD*)	0.89 (1.76)	0.26 (0.73)	t = -3.434; $p = 0.001$*
	Minimum n.	0	0	
	Maximum n.	6	5	
	%	30.9%	17.3%	
Total	Mean (*SD*)	8.39 (5.93)	3.90 (4.01)	t = -6.56; $p \leq 0.001$*
	Minimum n.	0	0	
	Maximum n.	28	22	
	%	94%	71%	

SD: standard deviation; AG: alcoholic group; CG: control group; Minimum and Maximum n.: minimum and maximum number of traumatic events/situations experienced in the category; *t*: Student's *t* test; p: significance level; *: statistically significant difference; %: percentage of individuals who experienced at least one traumatic event/situation in the category.

Table 2. The frequency and percentage of different early emotional trauma subtypes/situations experienced by the sample, according to the alcoholic and control groups

EET Category	EET[(A)] Subtype	AG		CG		Statistics
		N	%	N	%	
General traumas	1.1. Natural disasters	18	16.4	7	6.4	$X^2 = 5.46$; p = 0.01*
	1.2. Severe accident	29	26.4	23	20.9	$X^2 = 0.90$; p = 0.34
	1.3. Injury/Illness	44	40.0	18	16.4	$X^2 = 15.18$; p < 0.01*
	1.4. Death/Illness of parents	54	49.1	21	19.1	$X^2 = 22.03$; p < 0.01*
	1.5. Divorce	49	44.5	14	12.7	$X^2 = 27.24$; p < 0.01*
	1.6. Death/Injury of siblings	53	48.2	10	9.1	$X^2 = 41.12$; p < 0.01*
	1.7. Death/Injury of friends	58	52.7	20	18.2	$X^2 = 28.68$; p < 0.01*
	1.8. Violent situations	49	44.9	18	16.4	$X^2 = 20.62$; p < 0.01*
	1.9. Mental disorder in the family	41	37.3	19	17.3	$X^2 = 11.09$; p < 0.01*
	1.10. Alcohol/Drug use by parents	39	35.5	13	11.8	$X^2 = 17.02$; p < 0.01*
	1.11. Murder	39	35.5	23	20.9	$X^2 = 5.74$; p < 0.01*
Physical traumas	2.1. Slap in the face	47	42.7	34	30.9	$X^2 = 3.30$; p = 0.07
	2.2. Burnt with water/cigarette	35	31.8	16	14.5	$X^2 = 9.21$; p < 0.001*
	2.3. Punched/Kicked	39	35.5	21	19.1	$X^2 = 7.42$; p < 0.01*
	2.4. Thrown objects	35	31.8	20	18.2	$X^2 = 6.28$; p < 0.01*
	2.5. Pushed	39	35.5	33	30.0	$X^2 = 0.743$; p = 0.39
Emotional traumas	3.1. Ridiculed	28	25.5	16	14.5	$X^2 = 4.09$; p = 0.04*
	3.2. Ignored	30	27.3	15	13.6	$X^2 = 6.28$; p < 0.01*
	3.3. Told that he/she was not good	28	25.5	10	9.1	$X^2 = 10.30$; p < 0.01*
	3.4. Lack of affection/Love	29	26.4	11	10.0	$X^2 = 9.90$; p = 0.02*
	3.5. Parents did not understand the his/her needs	29	26.4	14	12.7	$X^2 = 6.50$; p < 0.01*
Sexual traumas	4.1. Touching body parts	22	20	9	8.2	$X^2 = 6.34$; p = 0.01*
	4.2. Rubbing genitals	20	18.2	10	9.1	$X^2 = 3.86$; p = 0.05*
	4.3. Touching intimate parts of another	17	15.5	2	1.8	$X^2 = 12.96$; p < 0.01*
	4.4. Sex against his/her will	16	14.5	3	2.7	$X^2 = 9.73$; p = 0.02*
	4.5. Oral sex	12	10.9	2	1.8	$X^2 = 7.62$; p = 0.01*
	4.6. Sexualized kiss	11	10	3	2.7	$X^2 = 4.88$; p = 0.03*

A: non-exclusive categories; AG: alcoholics group composed of individuals with alcohol dependence diagnosis; CG: control group composed of individuals with no diagnosis of alcohol abuse and/or addiction; N: frequency; %: percentage; p: significance level; X^2: chi-square test; *: statistically significant difference; EET: early emotional traumas.

Regarding the joint analysis of the variables, no significant correlations were observed when the categories were compared. Two multivariate logistic regression models were tested to evaluate the alcohol dependence EET predictive value.

Firstly, an analysis was performed by taking under consideration the four EET categories all together. Results showed that general (*odds ratio* (ODDS) = 1.45; Confidence Interval ([CI] = 1.27-1.65; $p < 0.001$) and emotional traumas (ODDS = 1.23, CI = 1.01 – 1.50, $p = 0.003$) worked as risk factor for alcoholism development. Thus, each general and emotional trauma situation experienced by these individuals increased by 45 and 23%, respectively, their chance of developing alcoholism in comparison to individuals who had not faced such traumatic experiences.

Next, a second initial logistic regression model tested all different EET subtypes/specific situations that were statistically significant according to the analysis described in Table 2 (those with significance value lower than 0.05 set the final model shown in Table 3).

As it can be seen in Table 3, four EET-specific situations worked as risk factor for alcoholism. They increased the chance of developing the disorder when the event was experienced from 2.77 to 8.66 times.

Discussion

The current study aimed to determine possible links between EETs and alcohol dependence. In addition, it sought to associate specific EET situations and alcoholism as well as to check the EET role as risk factor for alcohol dependence development in a sample, which exclusively comprised male individuals from a developing country. These specificities stand out as the study differential when it is compared to previous studies found in the literature.

The findings in the current study corroborate those of previous studies[24-26] regarding the close relationship between EET and alcoholism pointed out in the literature. Alcohol-dependent individuals showed EET percentages higher than the non-dependent ones. They also showed bigger EET co-occurrence number (about twice as much). This finding is not unusual, since international statistics show that the combined occurrence of different EET types is quite high in this group of individuals and that it reaches rates up to 84%[12,27,28].

In addition, the high EET rates draw attention not only to the alcohol-dependent individuals sampling group, but also to the controls (17.3% to 63.6%); mainly when they are compared to the trauma prevalence in the general Brazilian population, which was estimated approximately 7 years ago (5.7 to 12%)[29]. These data are a warning sign about the increase and severity of these indicators, and they require special attention from governmental institutions and from programs targeted to protect the health and integrity of local children and adolescents[30].

The increased EET rates found in the current study, in comparison to other international indicators, may be partly explained by the Brazilian social context and by that of several other developing countries. This social context enhances the exposure to other risky situations. In this particular context, part or much of the population belong to disadvantaged social strata and live in families with big number of children coming from multiple marriages. Such fact may favor the emergence of conflicts and aggressions resulting from the correction strategy applied, in most cases, to children by stepfathers or stepmothers due to their bad behavior[31-33]. In addition, high unemployment and underemployment rates, and even the need for parents and/or caregivers to work in multiple jobs to supplement the family income, favor stress, personal dissatisfaction, parental distancing from the children, family conflicts, substance abuse, among other potentially harmful aspects[34]. All these factors together may broaden the experience of early stressors and increase children's vulnerability to different EETs.

By analyzing the EET categories, it was possible to see that categories such as "general" and "physical" traumas were the most frequent in the AG sample. Elliott *et al.*[15] and Fenton *et al.*[16] had previously reported this finding regarding physical trauma; however, its occurrence (25% to 31%) was lower than that found in the current study (60.9%). The high prevalence of physical trauma in the AG in the current study, in comparison to that reported in the literature, may be justified by the fact that corporal punishment is still widely used as educational practice in the current family context, despite the child protection efforts that include judicial proceedings (ordinary law 13.010 from June 26th, 2014)[35].

The herein categorized "general" traumas were not investigated in the aforementioned studies, probably because the authors used measurement instruments such as the "Childhood Trauma Questionnaire" (CTQ), which does not assess these types of occurrences and/or experiences (natural disasters, collapses, among others). Thus, this finding appears to be innovative and it mainly draws the attention of clinicians and researchers in the field towards the impact caused by experiences such as injury or illness in people close to the children, violence, divorce, psychiatric disorder of the parents, natural disasters and death-associated experiences. It is worth emphasizing the risk factor for alcoholism associated with this type of trauma, because its occurrence increases by 45% the chance of developing the disorder.

Similarly, "emotional" and "sexual" traumas were most often found in AG than in CG, with statistically significant differences. These data meet those found in the previous literature, which suggests that approximately 34% of the alcohol-dependent individuals[8,35] experienced emotional traumas and 3-21% of them experienced sexual traumas[36-38].

It is also important to highlight that EET subtypes/specific situations also individually worked as risk factor for the disorder. It is worth emphasizing the role played by children interaction with parents and/or caregivers who had history of alcohol and other substances use or abuse, as it was previously documented[39,40]. Therefore, alcohol use by caregivers may model the child learning by signaling that addictive behaviors are acceptable or even expected within certain contexts. On the other hand, Souza and Carvalho[41] found that children of alcohol-dependent parents show increased risk of experiencing other EET types, such as living in unstable home environments, suffering physical and verbal aggression, parental divorce and parental affectivity reduction, which may be secondarily associated with alcohol abuse.

Some specific EET subtypes also worked as risk factor for alcoholism, namely: "witnessing the death or injury of siblings", "hearing that they are not important" and "touching intimate body parts of another person". The literature suggests the significant impacts felt by the individual when he/she experiences the aforementioned EET subtypes. These impacts cause damages to the physical and psychosocial development. Such damages may show up in the short, medium and long term[42]. In the short term, it is possible

Table 3. Final logistic regression model for predicting alcoholism using different traumatic subtypes/situations as independent variables

Variables	B	S.E.	p	O.R.	CI = 95%	
					Lower	Higher
Death/Injury of siblings	2.15	0.40	$p < 0.001$*	8.66	3.93	19.05
Alcohol/Drug use by parents	1.01	0.40	$p = 0.01$*	2.77	1.24	6.17
Told that he/she was not good	1.17	0.45	$p = 0.01$*	3.24	0.90	1.33
Touching intimate parts of another	2.02	0.81	$p = 0.01$*	7.58	1.52	37.64

B: beta value; S.E.: standard deviation of the estimate; p: significance level; O.R.: odds Ratio; CI: confidence interval.

to see the development of low self-esteem, learning problems, and difficulty in engaging in interpersonal relationships. In the medium and long terms, it is possible to see neurological damages and increased susceptibility to develop depression, anxiety and abusive behaviors related to alcohol and drug use[43-45].

In short, it is concluded that EETs are in fact significantly associated with addictive behaviors in adulthood, such as alcohol dependence. Thus, EETs are important factors that should be taken into account in interventions that aim to prevent, minimize and/or treat this clinical condition and its impact and/or severity, especially in countries such as Brazil. The prevalence rates are higher in these countries and the public health policies as well as the policies to protect the underage teenager welfare are ineffective when they are compared to the same policies in developed countries such as the United States and England[46-49].

It stands out as limitations of the current study: a) the use of clinical sample, in particular with significant liver comorbidities, which limits the generalizability of the findings to other clinical groups and to the general population; b) the use of cross-sectional methodology to document a temporal relationship considering the presence of EET grounded only in memory-based reports. Although previous studies[26,50] indicate similar EET rates both in retrospective and in prospective studies, this proviso should be taken into consideration.

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