Obrela JOURNAL Dialogues in Clinical Neuroscience & Mental Health

e-ISSN: 2585-2795 • Printed-ISSN: 2654-1432
DOI: 10.26386/obrela.v4i1.147

Prevalence of trauma, PTSD and psychotic symptomatology in relation to suicidality and quality of life in substance users

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Abstract

The present cross-sectional study aims to investigate trauma (early and cumulative), Post-Traumatic Stress Disorder, manifestation of psychotic symptomatology, quality of life and suicidality in recipients of Substitution Program services. The sample consists of 104 patients of the Integrated Treatment Unit of Addiction (OKANA). In this study several questionnaires were used such as the Early Trauma Self-Report Questionnaire - short form (ETI-SR-SF), the World Health Organization Quality of Life questionnaire - short form (WHOQOL-BREF), the European Adaptation of Addiction Severity Index (EuroASI), the Traumatic Life Events Questionnaire (TLEQ), the Post-Traumatic Stress Scale (PTSD Check List) and the demographic questionnaire. The findings showed that the increased incidence of general and emotional trauma before the age of 18, as well as psychotic symptomatology, predict the diagnosis of PTSD in participants. It has also been found that concurrent drug use is associated with masking the symptoms of PTSD. Regarding the quality of life, it has been found that the only factor that can predict it to some point is emotional abuse. At the same time, the coexistence of substance use disorders and psychotic symptomatology is associated with low quality of life, while early trauma is associated with the severity of problems faced by individuals in adulthood. Finally, it was observed that the cumulative trauma is positively associated with suicidality. These specific findings underline that the phenomenon of addiction is multi-factorial and therefore further investigation will contribute to a deeper understanding of the above correlations and to the development of more effective treatment programs of addiction.

Keywords: Early trauma, Suicidality, Post-traumatic stress disorder, Substance use disorders, Psychotic symptomatology, Quality of life, Cumulative trauma

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DOI: 10.26386/obrela.v4i1.147

Introduction

It is unequivocal that Substance Use Disorders (SUD) constitute a major public health problem (1) as it affects physical functionality, mental health and, in general, afflicts several aspects of users lives. Numerous scientists maintain that, psychopathology easily becomes the ground space of an addiction and, therefore, the phenomenon of comorbidity or the, so called, dual diagnosis is placed at the epicenter of their questioning. More specifically, drug use often coexists with a dormant psychosis, stress, depression, post traumatic disorder (PTSD) and a suicidal tendency (2,3). Researches have indicated that, among clinical groups (people with mental disorders of any kind), approximately 26-52% develop dual diagnosis of PTSD and SUD (4).

Analytically, the association between the substance use disorders and trauma is intricate and bidirectional (5). This fact means that, the interpersonal trauma record, enhances the likelihood of a drug abuse, and drug abuse, subsequently, enhances the risk of exposure to a traumatic incident (6). PTSD and SUD often coexist because, individuals who have experienced a traumatic incident, use drugs in order to control and sooth the symptoms, such as, the incident recall or hypertension (self – healing case) (7). Simultaneously, this case of comorbidity, is very frequent, likely because, drug use constitutes a high-risk behavior, which intensifies the likelihood of exposure to a stressful incident (high-risk case). Additionally, according to the case of vulnerability, drug users are more prone to post traumatic disorder or to other kind of disorders, which develop posterior to the exposure to a traumatic incident. According to Chilcoat and Menard (8), adults with SUD, (especially patients that use opioids or cocaine) are 11 times more likely to develop PTSD, compared to adults without SUD, whereas, adults with PTSD, are four to five times more likely to develop SUD, compared to adults without PTSD. Additionally, 90% of the adult patients with SUD refer a record of mental trauma, whereas 33%-50% are eligible for PTSD (9). This kind of comorbidity might diminish the effectiveness of the SUD treatment.

According to the fifth edition of the DSM (DSM-V), trauma is defined as the exposure to an actual death, or to the threat of death, to major injuries and to sexual violence. Particularly, child or early trauma refers to the psychological trauma taking place, before the completion of both, physical and mental development, that is, before the eighteenth year (10). It comprises the physical, sexual and emotional abuse and negligence. Researches have indicated that, physical abuse and negligence is associated to a higher risk of posterior manifestation of mental disorders and suicidal tendencies among the ages 16 to 25 (11,12). Nevertheless, besides abuse, general trauma, such as natural disasters or family mourning, is likely to constitute the cause of PTSD or depression manifestation to the individual (13).

Simultaneously, countless studies indicate that, sexual abuse during childhood is associated to a wide spectrum of psychiatric symptoms, including the substance use disorders (14). Liebschutz and others (6), having based their study on a Substitute Unit, concluded that physical and sexual abuse, often appears among this group: 72% has experienced an interpersonal trauma and 75% of the sample has experienced it in the childhood. The study of Sacks, McKendrick and Banks (15), indicated also that, 2/3 of women drug addicts, have been exposed to some kind of abuse in their childhood, whereas, 89% stated that have been abused once in their lives, statement that reveals the repeating exposure to traumatic incidents, during their lives. As far as men are concerned, the risk of manifesting major problems related to drug use, is higher among men who have suffered sexual abuse compared to the general population (16).

A high number of researches indicate that, individuals who have been exposed to multiple kinds of trauma, are more likely to develop mental health problems (17). Cloitre et al. (18) maintain that this is caused by the fact that the presence of multiple coexisting traumatic incidents, aggravates aggregately the human mental health. PTSD, caused by cumulative trauma might be even more jeopardous than PTSD caused by an isolated traumatic incident, mainly because the first one, is more likely to remain unnoticed and without treatment. As studies reveal, the excessively cumulative trauma, often appears as the index to the complex trauma (19,20). Complex PTSD constitutes a new addition to the forthcoming ICD – 11 and a relative disorder of the plain PTSD. Kolassa et al.

DOI: 10.26386/obrela.v4i1.147

(21) based on a research they did on 444 refugees, observed that as the exposure to diverse types of traumatic incidents increases, the gravity of PTSD symptoms simultaneously increases. Similar conclusions have been drawn by Ogle, Rubin and Sieglera (22), in a sample of American elderlies.

Psychological trauma has also been narrowly related to suicidal tendencies and suicidal behavior, by several researchers (23,24,25). Approximately 40% of the patients, who address to addiction treatment centers state a suicide attempt record (26). Furthermore, suicidal behavior is a phenomenon often observed among drug addicts with dual PTSD diagnosis (27). Individuals eligible for the diagnosis criteria for both disorders, tend to develop more psychiatric symptoms and discomfort (28,29).

According to Courtois and Gold (20), the manifestation of psychotic symptoms, often appears as a response to the psychological trauma and the existence of PTSD, in people with comorbidity. Analytically, the abuse of certain psychoactive substances appears to associate to the development of psychotic symptoms, especially in individuals with genetic predisposition and those who have developed psychotic symptoms in the past (30). It has been found that more than 50% of the individuals diagnosed with psychosis, also develop a substance use disorder, whereas they often, also develop early trauma record (31,32). The bibliographic retrospection, substantiates the high prevalence of early psychological trauma, including sexual and physical abuse, among individuals, diagnosed with schizophrenia. Compton, Furman and Kaslow (33) found that patients of prime psychotic incident with comorbid addiction to cannabis, mentioned, to a much greater extent, physical and sexual abuse in their childhood, compared to patients who were not addicted (34).

The study of substance use disorders and mental disorders also indicates the major problems that individuals are confronted with, on a psychological, cognitive, social and physical level. Each of these disorders as well as their combination, is related to the aggravation of their quality of life (Quality of Life). The factors that compose this term, are the physical, psychological (mental) factor, healthy social relationships and the social environment (financial status, insurance etc.). According to the bibliographic review of Maeyer et al. (35), the quality of life, according the World Health Organization, of the opioid users, is lower than the quality of life of the general population and the individuals with medical diseases. Smith and Larson's (36) research has come to the same conclusion, which also indicated that patients with dual diagnosis had a worse quality of life than the ones with a single diagnosis. Respectively, Wu, Schairer, Dellor and Grella (37) maintained that there is a strong connection among early trauma, physical health problems and psychosocial functionality. High degree exposure to early traumas remarkably, increases the likelihood of PTSD manifestation, therefore reducing the quality of life of the individuals.

Based on what has been already mentioned, the purpose of this cross-sectional study is the research of the degree to which, the frequency and kind of early traumatic incidents as well as the existence of psychotic symptoms, predict the PTSD diagnosis, among the participants. Simultaneously, it has been surveyed the correlation between the existence of indicative PTSD symptoms in the past and the existence of PTSD diagnosis in the present, in the patients who featured concurrent use. Subsequently, it has been examined the relation between early trauma and quality of life of the participants, as well as the relation among SUD comorbidity, psychosis and quality of life. Furthermore, it has been studied the relation between the frequency and kind of early traumatic incidents and the degree of gravity of their addiction. In conclusion, it has been examined the correlation between cumulative trauma, compared to the gravity of addiction and the suicidal tendencies.

Method

Participants

The questionnaires were administered to male and female drug users in a Substitution Unit receiving either methadone or buprenorphine. From the 202 patients, our sample was finally formed to 104 people, who agreed to participate in the research. Based on the exclusion criteria we had set, 31 people were excluded, of which 19 came to the Program intoxicated, while the remaining 12 show, according to their history, a serious neurological or mental disorder. More spe-

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cifically, the exclusion criteria were applied in order to ensure the greatest possible reliability of the research data. Yet, eleven people did not participate in the research, as they did not attend the Program at all at that time due to serious medical problems (home confinement or hospitalization). In addition, it is worth mentioning that a significant number of these patients develop psychopathology, while many of them are diagnosed with comorbid disorders.

Research process

The present cross-sectional study was carried out at the premises of the Integrated Treatment Unit of the Organization against Drugs – OKANA (General University Hospital "ATTIKON") from November 2019 to March 2020. This Unit offers therapeutic substitution programs with opioid substances, such as methadone and buprenorphine and implements -based on clinical practice guidelines- an integrated program for patients with dual diagnosis (38). Regarding the study, the research team kept in contact with the entire staff of the Unit, became familiar with its subject and operating framework and received all the required information about the sample population. In addition, the patients of the Unit participated in the research voluntarily. The data was collected through the administration of questionnaires during private meetings with the patients. All participants initially had to sign the research's information and consent form. The questionnaires were anonymous as the "EPIPSY" code of the patients was used. Eventually, the patients who agreed to participate in the study are under constant monitoring so that the prevention of a probable re-injury will be ensured.

Research tools

The following tools were selected among a restricted number of standardized questionnaires which measure the above variables.

Early Trauma Self-Report Questionnaire - short form (ETI-SR-SF)

The Early Trauma Self-Report Questionnaire (ETI-SR-SF) was developed by Bremner, Bolus, & Mayer (39) and includes four forms of trauma: general trauma and physical, emotional and sexual abuse. The scoring method is done either by the sum of the positive answers in each dimension (the more the "Yes" answers are, the bigger the trauma is considered), or by the sum of the frequency in each dimension (from 0 = Never to 3 = Often). The Greek version presents a high level of internal consistency (Cronbach's $\alpha = 0.91$) and good test-retest reliability (ICC = 0.93) (40).

Traumatic Life Events Questionnaire (TLEQ)

This questionnaire was developed by Kubany et al. (41) in order to measure the occurrence of traumatic events in individual's life. The Greek version of this questionnaire includes 18 questions related to traumatic events. At the same time, studies that tested the psychometric properties demonstrate good test-retest reliability ($r = 0.60$) (41), high external validity (42), good convergent validity and exceptional content validity (41).

Post-Traumatic Stress Scale (PTSD Check List)

The Post Traumatic Stress Scale (PCL) was developed by Weathers, Litz, Herman, Huska, & Keane (43). It contains 17 elements that correspond to the main symptoms of PTSD based on the DSM-IV. Regarding the manifestation of indicative symptoms of PTSD in the past as well as the existence of psychotic symptomatology, the respective self-referential questions, which had been added to the questionnaire, were taken into account. The PCL-C total score (i.e. sum of scores for the 17 items) ranges from 17 to 85. With this in mind, previous studies have suggested that scores of 45-50 provide the best discrimination between cases and noncases. Regarding its psychometric properties, research data indicate that the degree of internal consistency is recorded from $\alpha =$. 94 (44) to $\alpha =$. 97 (45).

World Health Organization Quality of Life Questionnaire (WHOQOL-BREF)

The short form of the World Health Organization (WHOQOL-BREF) Quality of Life Questionnaire includes 26 questions that assess quality of life in four dimensions: physical health, mental health, social relationships and the relationship between the individual and his environment. It con-

DOI: 10.26386/obrela.v4i1.147

cerns the last two weeks of the person's life, while higher scores are a sign of a better quality of life. This questionnaire presents internal consistency reliability, with Cronbach's alpha ranging from α = 0.67-0.81 (46).

Demographic Questionnaire

The demographic questionnaire was designed based on the needs of the research and consists of 13 multiple choice questions about the personal data of the individual.

European Adaptation of the Addiction Severity Index (EuropASI)

The European Adaptation of the 5th edition of the American research tool for the Addiction Severity Index (EuropASI) is a semistructured 45-60 minute interview (47). The original version was made by McLellan and his associates and was first released in 1980 (48). EuroASI provides a multidimensional clinical picture of the severity of alcohol and substance abuse problems as it assesses the past and recent functioning of addicts in seven areas: physical health, occupational / financial status, alcohol, substance use, relationship with the criminal justice system, family / social relationships and mental health status (46). According to the US version of ASI, either Composite Scores (CSs) or the Interviewer Severity Rating (ISR) (49) can be used to draw conclusions. In both cases the high score indicates high levels of addiction severity. Before the questionnaires were administered, all members of the research team were trained (theoretically and experientially) in how to conduct the semi-structured interview by the specialized staff of the Unit.

Results

Sample characteristics

As shown in Table 1., 86 males (82.7%) and 18 females (17.3%) took part in this research, aged 23 to 71 years old, with the average age of the sample being 46.2 years old (*SD*=9.17). Most participants are Greeks (96.2%), unmarried (55.8%), unemployed (71.2%) and had some secondary education (91.3%). The substance of preference for the 64.4% of the sample is heroine, with the next most prevalent substances being cannabis and cocaine at a rate of 13.5% and 12.5% respectively. Regarding the substitute, the 69.2% of the participants are administered buprenorphine while the 30.8% are administered methadone (Chart 1). When it comes to suicidality, the 46.2% of the sample mentioned that they have tried to commit suicide in the past and the average number of suicide attempts was *M* =1.68 (*SD*= 3.69). Finally, an important percentage of participants (43.3%) have manifested psychotic symptoms, with the average age of manifestation

Table 1. *Socio-demographic sample characteristics*

Gender	**(%)**	**N**
Males	82.7%	86
Females	17.3%	18
Age		
23-40	31%	32
41-44	20.2%	21
45-53	26.1%	27
54-71	22.7%	24
Nationality		
Greeks	96.2%	100
Foreigners	3.8%	4
Marital Status		
Unmarried	55.8%	58
Married	21.2%	22
Divorced	19.2%	20
Widowed	3.8%	4
Children		
Exist	43.3%	45
Non-existent	56.7%	59
Education level		
Secondary education	91.3%	95
Higher education	7.7%	8
Advanced education	1%	1
Employment status		
Employed	28.8%	30
Unemployed	71.2%	74
Residential area		
Urban	91.3%	95
Rural	8,7%	9

Note. N=104

DOI: 10.26386/obrela.v4i1.147

being 11.9 years old (*SD*=16), while the 26% of the sample has been hospitalized (Table 2.).

The traumatic experiences that had the biggest impact on participants' life were the death or serious illness of a parent or a caregiver (10.9%), of a friend (9.9%) and rape (8.9%). Regarding the correlation between early trauma and quality of life, the results of this research indicated a negative correlation between emotional abuse and quality of life (*r*=-.245, *p*=.012). Thus, the more common this type of early trauma is, the worse the quality of life in adulthood is. More specifically, it was found a negative correlation between early trauma and physical (*r*=-.291, *p*=.003) and mental health (*r*=-.269, *p*=.006). Only trauma caused by emotional abuse was found to be a statistically significant predictor of quality of life *R*=.308, Adjusted R^2=. 058, *F*(4,103)= 2.590, *p*=.041. The more the score on the emotional abuse factor is increasing, the worse the participants' quality of life is β=-,345, *p*=.004. When it comes to the comorbidity (substance use disorders and psychotic symptoms), the findings of this study suggested that 4 out of 10 participants have manifested psychotic symptomatology and especially at the age of 11-13 years old. People who have experienced psychotic symptoms seem also to score higher at the assessment of early trauma (*M* = 26.82, *SD* = 13.35) than those who have not experienced those kind of symptoms (*M* = 17.81, *SD*= 10.27).

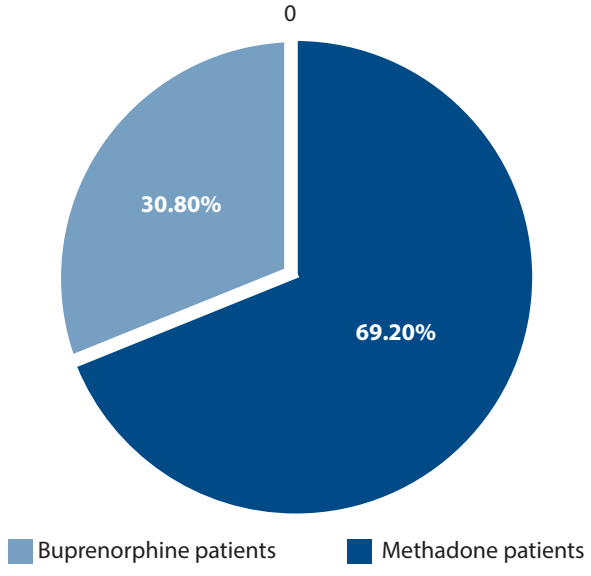
Moreover, the results of this study indicated a negative correlation between comorbidity and quality of life (*r*=-321, *p*=.001). This is to say that the higher the comorbidity of SUD and psychotic symptoms is, the worse the participants' quality of life is assessed. Additionally, the statistical analy-

Table 2. *Sample distribution based on the age of early trauma, the age of substance abuse initiation, the substance of preference, the cessation of receiving services of the Substitution Unit, the psychotic symptomatology, and the suicidality*

		N	%
Age of early trauma (SD)		16.5(11.72)	
Age of substance abuse initiation (SD)		17.74(4.77)	
Substance of preference	Alcohol	1	1.0
	Benzodiazepine	2	1.9
	Heroine	67	64.4
	Cannabis	14	13.5
	Tobacco	2	1.9
	Cocaine	13	12.5
	Pharmaceutical pills	1	1.0
	Speedball	1	1.0
	Hallucinogenic	1	1.0
	Opiates	2	1.9
Cessation of receiving services of the Substitution Unit,	Yes No	46 58	44.2 55.8
Psychotic Symptoms	Yes No	45 59	43.3 56.7
Age of psychotic symptoms initiation (SD)		11.9(16)	
Patients who have tried to commit suicide		48	46,2%
Number of suicide attempts(SD)		1.68 (3.69)	

Note. N=104

Chart 1. *Sample distribution based on the administered substitute*



DOI: 10.26386/obrela.v4i1.147

sis on the differences in quality of life and comorbidity levels, according to participants' demographic characteristics, showed that gender and employment status affect quality of life. More specifically, women scored higher on the "physical health" of Addiction Severity Index (*M*=5.83) and lower on "physical health" of WHOQOL-BREF questionnaire (*M*=2.64). Participants who were employed scored higher on quality of life (*M*=3.23) and lower on employment problems (*M*=3.2), as they are assessed by Addiction Severity Index.

Participants, also, with increased general trauma and trauma caused by emotional abuse manifest PTSD symptoms to a great extent, just like those who have experienced psychotic symptoms. Nevertheless, the frequency of early trauma caused by sexual and physical abuse cannot predict PTSD symptoms. Thus, according to the regression model, general trauma, trauma caused by sexual, emotional, physical abuse and psychotic symptomatology, as independent variables, can predict the 37.8% of the variance in PTSD symptoms (dependent variable) R^2 (F = 11.930, p <. 01). Furthermore, participants who have experienced psychotic symptoms mentioned more symptoms of PTSD (*M* = 52.64, *SD*= 17.56) than those who have not experienced those kind of symptoms (*M* = 38.78, *SD*= 15.98).

Regarding the Addiction Severity Index, the results did not indicate any statistically significant correlations between the frequency of early traumatic events and the addiction severity based on the alcohol and drug problems. More specifically, there is not a relation neither between alcohol and early trauma rho (104) =. 077, ns nor between drugs and early trauma rho (104) =. 113, ns. Additionally, it was found a positive correlation between the severity of psychological problems and early trauma (*r*=.508, *p*=.000). Early traumatic experiences were found to be a statistically significant predictor of the severity of psychological problems *R*=.508, R^2=.258, Adjusted R^2=.250, *F*(1,103)= 35.393, *p*=. 000. The more the frequency of early trauma is increasing, the more severe the psychological problems are β=.508, *p*=.000. Moreover, early trauma constituted a statistically significant predictor of the severity of family-social problems *R*=.318, R^2=.101, Adjusted R^2=. 092, *F*(1,103)=11.475, *p*=.001. The more frequent the early trauma is, the more severe the family-social problems are β=.318, *p*=.001.

In order to measure the total number of traumatic experiences in one's whole life, a new single variable of the positive answers to the 18 questions of TLEQ questionnaire was constructed (α =. 734). The average number of traumatic experiences was *M* = 8 (*SD*= 3.32). Using this new variable, the sample was separated in two groups based on the total number of traumatic experiences. The sample was separated in the following way:

0-8 traumatic experiences (52.9%)

9+ traumatic experiences (47.1%)

There was not found a statistically significant correlation between the total number of traumatic experiences and the severity of drug-related problems (*r* =. 88, *p* > 0.05). However, t-test analysis indicated that there are statistically significant differences between the 2 groups based on the number of suicide attempts *t*(54.35) = 2.69, *p* =. 009. Participants who have experienced 9+ traumatic events in their whole life (*M* = 2.73, *SD* = 5.00) have attempted more times to commit suicide than the participants who have experienced 0-8 traumatic events (*M* =. 74, *SD* = 1.36).

Furthermore, taking into consideration the toxicological tests, 38 participants had not used any illicit drugs, while 66 participants had used at least one illicit substance. It is also worth mentioning that in the 35% of the sample was detected one psychotropic substance, in the 26% was detected two substances and in the 3% was detected three substances. After dividing the sample in 2 groups (those who are using illicit drugs and those who are not using in the present), a statistically significant correlation was found between the onset of indicative PTSD symptoms in the past and the diagnose of PTSD in the present regarding the participants who had not used any illicit drugs (r_{pb}(38) =. 370, *p* =. 05). However, a statistically significant correlation was not found between the presence of indicative PTSD symptoms in the past and the diagnose of PTSD in the present regarding the participants who are using now illicit drugs (r_{pb}(66) =.147, ns). Finally, participants who are using illicit drugs (N=66) during their therapy not only do they seem to underestimate PTSD symptoms

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in the present, but also they are experiencing more PTSD symptoms, regardless of whether it is in the past (N=53) or in the present (N=24), than those who are not using illicit drugs.

Discussion

The existing literature has shown that substance use disorders often coexist with psychiatric disorders such as psychosis, depression and suicidality. This is indeed confirmed by the present study. A significant percentage of participants (43.3%) have developed psychotic symptoms, while 46.2% of the sample has attempted suicide in the past.

Furthermore, according to research drug users are more likely to have high rates of PTSD and trauma than non-users (8,9,1). In the present study it was found that the extremely frequent early trauma of various etiology and emotional abuse, as well as the presence of psychotic symptoms, can predict PTSD in the participants. This finding is consistent with the existing literature, as both the type and the increased frequency of exposure to traumatic events increase the likelihood of developing PTSD (50). Similarly, according to Jeon et al. (12) general trauma (e.g. natural disasters, family mourning) is associated with the onset of PTSD in adulthood. However, emotional abuse has not been shown to be closely related to PTSD in the existing literature. Regarding psychosis, the fact that it often appears in response to mental trauma and PTSD (20) justifies the above finding.

In addition, no statistically significant association was found between the presence of indicative PTSD symptoms in the past and the diagnosis of PTSD in the present between the participants who were using illicit drugs during their therapy. In contrast, in participants who tested negative to all substances was found a statistically significant correlation. This fact can be interpreted taking into account the self-medication hypothesis (7). In other words, it seems that the aim of drug use is to relieve the unpleasant symptoms of PTSD. The self-medication hypothesis may also explain the fact that the mean age of first trauma (16.5) is remarkably close to the mean age of the onset of drug use (17.74 years) between the participants. Therefore, if PTSD is not get treated and cured, any attempt to treat addiction will not be effective (3).

Moreover, regarding the relationship between early trauma and quality of life, it was found that emotional abuse is negatively correlated with the quality of life of the participants. In particular, early trauma was negatively correlated with physical and mental health. Other studies have found that different types of child abuse are associated with reduced quality of life, mainly in the areas of mental and physical health (51, 37). Emotional abuse is the only form of early trauma that can predict, to some extent, the participants' quality of life. As the frequency of emotional abuse increases, so does the quality of life. This finding is also confirmed by the research of Brown, Jun, Min & Tracy (52). The emergence of only this type of early trauma is probably explained by the fact that generally it can occur more often than other types.

Statistical analysis also showed a statistically significant negative correlation between the comorbidity of substance use / psychosis and the quality of life. This is confirmed by similar studies showing that patients with a dual diagnosis had a poorer quality of life than those with a single diagnosis (36,37). The findings showed that women had more serious physical health issues and a correspondingly lower quality of life in the same area.

Afterwards, the analysis of the relationship between the Addiction Severity Index and the early trauma showed that early trauma predicts the severity of psychological and social-family problems. Also, many studies have focused both on the long-term effects of traumatic experiences and on individual's mental health and family-social relationships (6,53,54,55). However, no correlation appeared between the frequency of child abuse and the severity of alcohol and drug use, which is probably due to the way composite scores are assessed.

A further attempt was made to investigate the effect of the cumulative trauma on the already aggravated mental health of substance abusers. More specifically, it was found that the average of total traumatic experiences in the sample was eight, while according to previous research, the average number of traumatic experiences in the general healthy population corresponds to about four (56, 57). This difference between the two groups could greatly be explained by the "high-risk hypothesis", in which, as we already explained,

DOI: 10.26386/obrela.v4i1.147

drug users tend to adopt a riskier lifestyle directed by their risky needs for drugs (8,58).

However, the correlation between the cumulative trauma and the severity of substance use was not featured, notwithstanding that the international literature demonstrates the relationship between the two variables. We suppose that this is due to the statistical weakness of the composite score index (59). Finally, the present research was in accordance with a number of previous studies (60, 61), which showed that the number of traumatic experiences of a suicidal person is positively correlated with the number of the suicide attempts they have committed in their life, indicating the devastating impact trauma can have on somebody's life.

At this point, it is worth referring to some of the weaknesses and limitations presented in this study. Initially, we could not come to conclusions based on gender due to the under-representation of women in this research. Besides, women, generally, are significantly fewer than men in Substitution and Addiction Treatment Programs. Additionally, the self-report questionnaires that were used have some disadvantages. On the one hand, it is possible that for some participants the process of recalling the traumatic events of their lives is difficult while, on the other hand, they refuse to report their traumatic experiences on purpose (62). As the literature indicates, composite score indexes have some limitations because they emphasize in the patient's personal sense of need for treatment, while their scores are based on the events of the last thirty days. This has as a result that important aspects of the patient's life are not taken into account. Undoubtedly, areas such as substance use are difficult to research due to their complex and multifactorial nature (63).

Concluding, it is important to conduct larger-scale studies with better representation of women in the sample and with an equal number of patients receiving methadone and buprenorphine in order to examine possible differences in the prevalence of PTSD, psychotic symptoms and suicidality between these groups. (64). Furthermore, it has been found that emotional abuse is significantly associated with the outcome of treatment of substance use disorders (9). Given the key role to this type of trauma, it is suggested that further studies be focused on this topic. It is, also, necessary to further examine the effect of the number of traumatic events in a person's life, given the incomplete literature noticed regarding the cumulative trauma. Therefore, the above knowledge contributes to a better understanding of the psychopathology and comorbidity of substance use disorders, which can help the scientific community to adopt practices that are more representative of their patients' needs.

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