

PREDICTION OF ABSTINENCE FROM HEROIN ADDICTION BY CHILDHOOD TRAUMA, DISSOCIATION, AND EXTENT OF PSYCHOSOCIAL TREATMENT

ELI SOMER*

School of Social Work, University of Haifa, Mt. Carmel, Haifa 31905, Israel

This study is an investigation of trauma and dissociation in 93 Israeli patients recovering from drug use disorder. The respondents showed more emotional, physical and sexual traumatization than consecutive admissions to an Israeli outpatient stress clinic, and their levels of dissociation were similar to those previously measured in Israeli patients diagnosed with Posttraumatic Stress Disorder and Acute Stress Disorder. It was posited that the level of trauma-related dissociation can make an independent contribution to explaining variance in recovery from a drug use disorder. The finding of structural equation analyses supported this model and suggests that childhood traumatization is related to the proclivity of chemically-dependent respondents to participate in psychosocial treatment and that duration of psychosocial treatment can positively predict duration of abstinence. Dissociation levels made an independent negative contribution to the prediction of abstinence. While our findings imply that tenacity in treatment could be a sustaining process associated with abstinence from drug use, they also suggest that without a thorough resolution of trauma-related dissociation, optimal treatment outcome is compromised.

Keywords: Dissociation; Substance abuse; Heroin; Dual diagnosis; Trauma; Israel

People with a childhood trauma history constitute a significant proportion of injecting drug users (Van Hasselt *et al.*, 1992). Drug use disorders are also known to be common among survivors of childhood trauma who suffer from dissociative disorders (Rivera, 1991). In the present study, we investigated trauma history and dissociation among recovering Israeli patients with drug use disorders. We will first describe the literature on the inter-relations between trauma, dissociation, treatment duration and outcome in drug use disorder populations. On the basis of this literature, we propose a model of abstinence from opiate addiction, which will be tested among a representative sample of Israeli patients recovering from heroin addiction.

Explanatory Models of Childhood Trauma and Proneness for Drug Misuse

Several explanatory models for the effects of child abuse trauma on mental development may help describe the vulnerability of survivors of child sexual abuse (CSA) to chemical dependency. Persistent conditions of high stress and abuse can create chronic autonomic hyperarousal (Charney *et al.*, 1993), thus, damaging the ability to modulate

*E-mail: somer@research.haifa.ac.il

intense affect (Fairbank and Nicholson, 1987; van der Kolk *et al.*, 1993) and developing a yearning to mute the experienced emotional/biological storm.

Another model to explain the link between childhood trauma and the proclivity to misuse drugs relates to the process of dissociation. This concept refers to the disintegration of normally integrated systems of the self, such as memory, thoughts, sensations, feelings, behavior and awareness. Dissociation is a normal human phenomenon typically employed by traumatized children to compartmentalize their awareness of their past and current experiences. During a traumatic event, dissociation enables the victim to observe the incident as a bystander with only a minimum of experienced distress. Although an effective coping mechanism under extreme duress, this solution can become problematic because it can create confusion and disorganized thinking, it can interfere with everyday functioning, it can inhibit the processing of dissociated traumatic pain, and can lead to a subjective sense of emotional deadness. When psychogenic dissociation fails to restore a sense of well-being and chemical substances are available, drug abuse might become the second stage of a strategy developed for coping with intolerable experiences and their memories (Hussey and Singer, 1993). Powerful abused drugs, such as opiates, help suffering survivors in their effort to self-medicate their unrelenting emotional pain (Khantzian, 1985; Dembo *et al.*, 1987). Schetky (1990) suggested that drugs help survivors achieve the repression they were unable to achieve effectively otherwise. Roesler and Dafler (1993) proposed that survivors of CSA tend to utilize "chemical dissociation" and showed that 65.9% of a clinical group of adult survivors met Diagnostic and Statistical Manual of Mental Disorders-III-Revised (DSM-III-R) criteria for lifetime prevalence of drug or alcohol abuse or dependence.

Furthermore, survivors of child abuse who are chemically dependent are likely to experience additional traumatic events in their current lives, including multiple traumatic sexual experiences (Evans and Sullivan, 1995), are more likely to engage in self-mutilative acts (Zlotnick *et al.*, 1997), and are more liable to have attempted suicide than others (Jarvis and Copeland, 1997). Using chemicals also satisfies a strong need for excitement and defiance of authority commonly found among oppressed survivors. Many survivors gravitate toward the drug-using crowd to satisfy their need to belong, profoundly shattered by their abusive experience. The altered state of consciousness achieved in that social context might help them cope with their profound sense of loneliness and alienation.

To conclude, evidence suggests that patients with drug use disorders have a greater likelihood of histories of childhood abuse (Aubeg and Fairbank, 1992; Van Hasselt *et al.*, 1992; Lisak, 1993). One study stated that 35% of recovering adolescent substance abusers had been sexually abused as children (Edwall *et al.*, 1989). Yet, no specific treatment-training program aimed at the recovery from trauma-related psychopathology has been offered to therapists of drug use disorders in Israel.

Substance Abuse and Dissociation

Little is known about the relationship between Dissociative Disorders (DD) and chemical dependency. Most of the literature on this subject relates to the statistical concurrence of the phenomena. Ross *et al.* (1992) reported four times the incidence of CSA and three times the incidence of DD among individuals who abuse alcohol and drugs compared to non-clinical controls. In a survey of 185 individuals with

severe DD, 57% had problems with drug abuse (Rivera, 1991). A sample of men, who were sexual offenders in their youth had a 30% incidence of drug abuse, and a 60% incidence of disordered use of alcohol, also showed an average score of 11.5 on the Dissociative Experiences Scale (DES; Carlson and Putnam, 1993) compared to an average score of 3.4 typical of non-clinical populations (Schulte *et al.*, 1995). Dunn *et al.* (1995) showed that 41.5% of chemically dependent veterans received an average DES score of 15 or higher. High levels of dissociation were also reported to be associated with chronicity of alcohol and drug use (Wenzel *et al.*, 1996). Nonetheless, no specific training for the treatment of dissociative pathology has been offered to therapists of drug use disorders in Israel.

Treatment Duration and Abstinence

Surprisingly, not much was written on the relationship between time spent in treatment and treatment outcome in drug-use disorders. However, regular and longer attendance at Alcoholics Anonymous meetings have been identified as important factors in maintaining abstinence from alcohol use disorder (McBride and LeBron, 1991). Longer stays in treatment were predictive of improved chemical abuse behaviors in a British residential sample (Gossop *et al.*, 1999). Similarly, Goldstein *et al.* (2000) reported that the more time their 993 former drug-injecting subjects spent in treatment during their follow-up period, the more likely it was that they were not using heroin or cocaine at follow-up.

In the present study, we integrated the literature on trauma, dissociation, addiction and treatment outcome to develop an abstinence model for recovering Israeli heroin addicts. We hypothesized that: (1) There exists a positive relationship between intensity of past traumata and tenacity in psychosocial treatment; and a positive relationship between tenacity in psychosocial treatment and duration of abstinence from illicit drug use; (2) Independent of treatment received, there exists a positive relationship between the intensity of past traumata and current experiences of dissociation in patients recovering from drug use disorders; and a negative relationship between current dissociation and duration of abstinence from illicit drug use; (3) Neither specific treatments for the emotional damages of childhood trauma, nor specialized therapies for dissociative disorders are offered to recovering Israeli drug use disorder patients. We, therefore, hypothesize that duration of therapy does not affect dissociation among recovering Israeli heroin addicts and that dissociation has an independent negative impact on duration of abstinence.

METHOD

Procedure and Subjects

All recovering heroin-injecting patients ($n=102$) from 3 drug rehabilitation centers in the Haifa district in northern Israel who met our inclusion criteria were approached for this study. To be included, their routine blood and urine tests had to indicate a continuous one-month drug-free period and they all had to be fluent in Hebrew. Of these, 93 patients (79 men, 14 women) agreed and signed the informed consent form (a 91% response rate). The subjects were predominantly Jewish Israelis (90%),

others were Arab Israelis. This ratio was equivalent to the relative representation of Jews and Arabs in the general population. Their mean age was 35.1 (range: 21–50) and they had an average of 10 years of education (range 7–13). Most subjects were unmarried: 25% had never married, 32% were divorced, 9% were widows, and 34% were currently married. Two-thirds of the sample was unemployed, and the Israeli welfare authorities financially supported 70% of the entire sample. Medical charts revealed that a dual diagnosis was given to 52 patients (56%). Of them, 21 were assessed as Major Depression (40%), 12 (23%) as Borderline Personality Disorder, 7 as Antisocial Personality Disorder, 6 as Posttraumatic Stress Disorder, and one as Panic Disorder. Many of the participants in this study (85%) reported having a criminal record. Participants had, purportedly, been abusing substances since the average age of 18 (range 15–32). The abused substances included heroin (100%), cannabis (92%), stimulants (51%), depressants (63%), and alcohol (40%). The average time that elapsed since the last usage of illicit drugs in our sample was 22.8 months (range: 3–25).

Instruments

Biographic Data Questionnaire

This instrument was built by the author and provided descriptive personal data, such as age, sex, education, employment, drug abuse history, and elapsed time since last abuse of drugs, criminal record and drug rehabilitation treatment history.

Traumatic Experiences Questionnaire – Hebrew Version (H-TEQ)

The original instrument we used was developed by Nijenhuis, van der Hart and Vanderlinden (Nijenhuis *et al.*, 1998) and later slightly modified and relabeled *Traumatic Experiences Checklist* (TEC). The reliability of the TEQ/TEC was supported by satisfactory indices of the scale's internal consistency. Cronbach's α s ranged between 0.86 and 0.90. The test–retest reliability of the TEQ/TEC total score was $r=0.91$, $p<0.0001$ (Nijenhuis, 1999). This is a self-report questionnaire inquiring about 25 types of interpersonal and non-interpersonal life events that could be potentially traumatic. When interpersonal violence was explored, subjects were asked to indicate whether immediate family members, relatives, or, others hurt them. TEQ items inquire whether respondents had suffered from the following stressors: parentification (a child needing to act in a parental role), major loss, such as a death of a loved one, life-threats, traumatic life events, emotional neglect, emotional abuse, physical abuse, sexual harassment, or sexual abuse. The TEQ specifically addresses the subjective impact of the event (i.e., how traumatic it was for the respondent), and also requests information about the number of perpetrators of emotional, physical, and sexual abuse. The questions contain short descriptions that intend to define the events of concern. All items are preceded by the phrase: “Did this happen to you?” An example of sexual harassment is: “Sexual harassment (acts of a sexual nature that DO NOT involve physical contact) by your parents, brothers, or sisters.” A sexual abuse item is: “Sexual abuse (unwanted sexual acts involving physical contact) by your parents, brothers, or sisters.”

Moderate to strong associations of the TEQ total score and composite scores, in particular physical and sexual abuse, with current psychological and somatoform dissociation, supports the construct validity of the TEQ. These associations were found when studying psychiatric outpatients with dissociative disorders and other mental disorders, gynecology patients with chronic pelvic pain (Nijenhuis *et al.*, 1999).

Among the key factors that determine what makes an event traumatic are: the perception of the event as having highly negative valence (e.g., Carlson, 1997), multiple perpetrators (e.g., Peters, 1988), duration and frequency of the abuse (e.g., Elliott and Briere, 1992), and abuse at an earlier age (e.g., Zivney *et al.*, 1988). The TEQ composite trauma score reflects these relevant traumatogenic factors. Each experience identified as a trauma item was given one point. Subjects could score 0–3 trauma points, depending on the number of perpetrating sources. Additional points were given to each personal trauma score if the subject was younger than age 10 when traumatized, if the trauma lasted more than one year, and if the impact of the traumatic event was rated as four or five on a five-point subjective severity scale. Personal trauma scores in each of the nine categories ranged from 0 to 7. Composite personal trauma scores could range from 0 to 63 (a score of 63 connotes the unlikely history of a person who sustained all the described traumata, had been abused by members of his immediate family for the maximum duration of time and through all developmental stages). The TEQ was translated into Hebrew by the author (a native Hebrew speaker) and later was blindly backtranslated into English by a native English speaker. The backtranslation was compared to the original version and differences were reconciled. The final Hebrew version of the TEQ (H-TEQ) was used in this study.

Dissociative Experiences Scale – Hebrew Version (H-DES)

The Dissociative Experiences Scale (DES) was developed in the United States (Bernstein and Putnam, 1986; Carlson and Putnam, 1993) and is used to measure the frequency of 28 dissociative experiences that are considered important aspects of the dissociation construct (Putnam, 1991). Measured experiences include: “Feeling as though one’s body is not one’s own”, “Looking at the world through a fog”, “Finding evidence of having done things one can’t remember doing”, and “Feeling as though one were two different people”. The instrument was shown to be a valid and reliable screening instrument (Frischholtz *et al.*, 1990; Waller, 1995). The Hebrew translation of the DES (H-DES) was shown to have high reliability and validity (Somer *et al.*, 2001). The instruments’ total score test–retest reliability coefficient was 0.87 ($p < 0.0001$, $N = 141$). Split-half reliability coefficient (calculated using the Spearman Brown formula) was 0.86 ($p < 0.0001$, $N = 584$). Cronbach’s alpha coefficient for the H-DES was 0.91 ($N = 584$). Convergent validity was calculated by comparing scores of the H-DES with scores of the Phillips Dissociation Scale (PDS), a 20-item instrument derived from the MMPI-2. There is no item overlap between the H-DES and the PDS. A Spearman Correlation between the H-DES and the PDS scores for 284 patients $r = 0.59$ ($p < 0.0001$). Divergent validity was calculated by comparing the scores of the H-DES and the Male/Female scale of the MMPI-2. As expected, there was no correlation between dissociative experiences and scores on a scale measuring masculinity/femininity [$r = -0.03$ ($p < 0.28$)] (Somer *et al.*, 2001).

RESULTS

Our respondents' average composite trauma score on the H-TEQ was 18.4 ($SD = 10.6$). This result reflected higher traumatization history compared to that measured in consecutive admissions to an Israeli outpatient stress clinic ($M = 14.14$; $SD = 16.35$; Somer *et al.*, 2001). The trauma categories receiving the highest mean scores in this study (reflecting frequency of endorsement, early age onset, duration of exposure and subjective effect) were Emotional Neglect ($M = 2.90$; $SD = 2.10$) and Emotional Abuse ($M = 2.89$; $SD = 2.01$). Physical Abuse received a mean trauma score of 1.96 ($SD = 2.04$). Average scores were 1.18 ($SD = 1.72$) for Sexual Harassment and 1.10 ($SD = 1.72$) for Sexual Abuse. This sample of former substance abusers appeared to be more traumatized emotionally, physically and sexually than an Israeli clinical sample (Somer *et al.*, 2001).

The average total H-DES score for the detoxified substance abusers investigated in this study was 21.30 ($SD = 14.02$). In comparison, Somer *et al.* (2001) reported mean H-DES scores for two relevant groups as follows: Posttraumatic Stress Disorder and Acute Stress Disorder – 20.36 and, DD – 29.45. This finding were in line with those presented by Dunn *et al.* (1995) who showed that 41.5% of chemically dependent veterans received an average DES score of 15 or higher and suggests an overlap between chemically dependent, traumatized and dissociative clinical populations.

Table I shows the zero-order correlations between variables investigated in this study. As can be seen from this table, there exists a positive relationship between intensity of past traumata and tenacity in psychosocial treatment, and a positive relationship between persistence in psychosocial treatment and duration of abstinence from illicit drug use, thus confirming our first research hypothesis. There also exists a positive relationship between the intensity of past traumata and current experiences of dissociation, and a negative relationship between current dissociation and duration of abstinence from illicit drug use, thus confirming our second hypothesis. Duration of therapy did not affect trauma-related dissociation among recovering Israeli heroin addicts and dissociation negatively affected duration of abstinence, thus confirming hypothesis 3.

Test of the Abstinence Model

Our abstinence from illicit drugs model was tested through LISREL 8 structural equation analyses (Joreskog and Sorbom, 1996), and the parameters in the model were estimated with the Maximum Likelihood Method. The model, as displayed in

TABLE I Zero-order correlations among trauma, treatment duration, dissociation, and abstinence ($N = 93$)

Variable	1	2	3	4
Trauma	1.00			
Treatment dur.	0.16*	1.00		
Dissoc.	0.29**	0.08	1.00	
Abstinence	0.13	0.42**	-0.22*	1.00

*Correlations significant at the 0.05 level (one-tailed).

**Correlations significant at the 0.01 level (one-tailed).

Fig. 1 consists of observed variables only. The construction of each variable is as introduced before. The LISREL analysis was based on the correlation matrix of the four variables. This enabled us to compare LISREL coefficients estimates to correlations (Table II).

The fit of our model to the data was assessed by seven indices. LISREL generates a chi-square goodness-of-fit statistic to test the extent to which the suggested model is consistent with the data. A small, non-significant chi-square value indicates a good fit with the data, indicating that the model and the data are not significantly different from each other. The chi-square goodness-of-fit statistic suffers from several statistical problems, among them sensitivity to sample size. We have, therefore, used the ratio of chi-square to degrees of freedom to form another fit index. A root mean square statistic (RMSEA) was also used, and an Expected Cross Validation Index (ECVI) of the model was compared to the ECVI of the independent model and to that of the saturated model. A model that fits the data well exhibits an ECVI close to the saturated ECVI. This means that relationships that do not exist in the model also do not exist, or are very weak in the data. Three other indices used were the

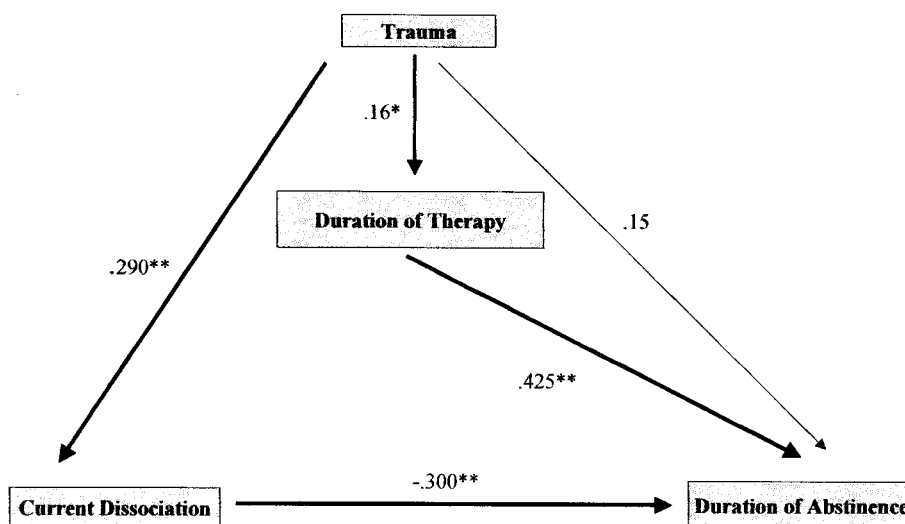


FIGURE 1 LISREL prediction model of duration of abstinence from drugs by trauma history, duration of therapy, and current dissociation.

TABLE II LISREL goodness-of-fit measures for abstinence model

$\chi^2(1) = 0.156; p = 0.693$
$\chi^2/df = 0.156$
RMSEA = 0.0
EM(independent) = 0.518
ECVI(model) = 0.200
ECVI(saturated) = 0.220
NFI = 0.996
CFI = 1.0
RFI = 0.976

Normed Fit Index (NFI), Comparative Fit Index (CFI) and Relative Fit Index (RFI) all are less sensitive to sample size and scaled from zero to one. The numerical value of 1 represents a perfect fit. Our model seems to fit the data very well and explains 29% of the variance in durations of abstinence from heroin.

DISCUSSION

Our findings should be considered with caution. Limitations of the present study include the retrospective self-report nature of past trauma that may have introduced bias or error into the data. No matter how meticulously performed, retrospective assessment of trauma will remain open to a degree of imprecision. This inherent flaw is due to the nature of encoding, storage, and retrieval of trauma memories, as well as psychological mechanisms that affect trauma reporting such as denial, dissociation, and fantasy proneness (Spinhoven *et al.*, 1999), and biological factors associated with trauma that affect memory (e.g., Whitefield, 1995).

Correlational research methodologies do not require the inclusion of control groups. Nevertheless, the generalizability and validity of proposed model could be improved by testing it in diverse cultures, and in non-traumatized populations of recovering heroin users.

All the same, we believe that these results may modestly contribute to the developing understanding of patients with a dual diagnosis consisting of chemical dependency and either a dissociative disorder or a concomitant history of childhood abuse. Our findings indicate that recovering Israeli patients with heroin use disorder appear to be a traumatized population with dissociation levels that resemble those obtained from patients diagnosed as suffering from PTSD or DD (Somer *et al.*, 2001). The severity of their trauma history directly affected their current dissociation levels. Because no specific treatment program for posttraumatic dissociation has been offered to recovering Israeli heroin-injecting patients, we did not expect that duration of psychosocial treatment received would be related to current dissociative experiences.

We also found that current trauma-related dissociation was an independent predictor of abstinence from heroin use. The two variables were inversely related: recovering heroin dependent persons who were high dissociators were less likely to enjoy favorable treatment outcomes as reflected in extended periods of abstinence. Because of the correlational nature of our data, it is important to look at an alternative explanation for the relationship between dissociation and abstinence: persons who had only recently become abstinent could have been more likely to compensate for the missing chemical dissociation by evoking their psychogenic trauma-related dissociative defenses.

Be that as it may, we believe it is sensible to screen candidates for substance abuse treatment for posttraumatic and dissociative pathology. Before clinicians encourage recovering traumatized patients with drug use disorders to give up their chemical dissociation, they should vigorously address their underlying post-traumatic problems. Our study suggests that childhood traumatization is related to the proclivity of chemically dependent respondents to stay in psychosocial treatment and that their tenacity in treatment could be a sustaining process, successfully compensating for maladaptive chemical self-medication. However, our model could suggest that without a thorough resolution of trauma-related dissociation, timely solution of underlying psychopathology and successful treatment outcome are less likely.

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