Childhood trauma in treated alcoholics. Prevalence and relevance for clinical impairment
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Assessment of Lifetime Physical and Sexual Abuse in Treated Alcoholics. Validity of the Addiction Severity Index

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Abstract
We examined the validity of the Addiction Severity Index (ASI) regarding the identification of lifetime physical and sexual abuse histories using the Structured Trauma Interview (STI) as external criterion in alcohol-dependent patients (n = 144). Compared to the STI, the ASI showed a lower incidence of lifetime physical abuse reports (51% vs. 24%) and lifetime sexual abuse reports (29% vs. 17%). Lower incidence of abuse reports was stronger in males compared to females, which could be largely explained by ASI perpetrator restrictions (i.e. exclusion of several extrafamilial perpetrators). Controlling for these restrictions, acceptable sensitivity for both sexual and physical abuse as well as good specificity was found. Data indicated no response bias on the ASI in terms of social desirability or abuse severity. Sensitivity of the ASI method can probably be improved by including an opening preface to the subsequent abuse questions, including questions inquiring about abuse histories that have neutral wording instead of using the word “abuse,” and inclusion of all possible perpetrators.

3.1 Introduction

Physical and sexual abuse histories may play an important role in mental health treatment. Regarding chemical-dependent clients, information on abuse histories may increase our understanding of the etiology of substance abuse (Root, 1989; Wadsworth et al., 1995). Additionally, a history of child abuse that is not acknowledged in treatment programs may increase relapse and impede progress in recovery (Chiavaroli, 1992; Palmer et al., 1995). Thus, systematic inquiry about abuse histories as part of initial clinical evaluation is relevant.

Treatment professionals have been encouraged to routinely ask their clients directly about physical and sexual abuse experiences rather than to rely on spontaneous disclosures (e.g. Read & Fraser, 1998). Direct questioning is necessary, because clients seldom disclose...
information regarding abusive experiences voluntarily due to dynamics of shame and guilt or fear for disbelieve or discount by the clinician. Also, clients may not have abuse histories on their minds during intake or counseling or do not think that their abuse history is related to their difficulties (Draijer, 1990; Briere, 1992a). Data do indeed indicate that relying on spontaneous abuse reports from clients is likely to result in underdetection of such histories (Jacobson et al., 1987; Rohsenow et al., 1988; Briere & Zaidi, 1989), especially in male clients (Read & Fraser, 1998; Lab et al., 2000).

However, a question of major concern is how to inquire after abuse experiences. The literature indicates that variation in ways of questioning affects reported abuse rates (Gelles & Straus, 1988; Draijer, 1990). Generally, multiple questions about specific events are preferred as opposed to one broad question, especially when this question labels experiences a priori as “abuse.”

In this report, we examine the validity of the lifetime physical and sexual abuse questions included in the Addiction Severity Index 5th Edition (ASI), which has become the most widely used instrument in substance abuse treatment settings and in addiction research (McLellan et al., 1992). Thus far, three validation studies of the ASI abuse questions have been conducted. Simpson et al. (1994) compared childhood physical and sexual abuse rates on the ASI and a self-report questionnaire, revealing an underestimation on the ASI of both abuse types among males and of sexual abuse among females. Two other studies (Najavits et al., 1998a; Langeland et al., 2001\(^2\)), comparing the ASI with instruments assessing posttraumatic stress disorder, indicate that the ASI abuse questions, although quite specific, are not particularly sensitive. One of the studies revealed a gender effect on the sensitivity of the ASI abuse questions, i.e. an underestimation of lifetime abuse histories in males. We assumed that this might be explained by the fact that the ASI utilizes a restricted perpetrator screening, excluding several nonfamilial perpetrators (Langeland et al., 2001).

Since assessment methods play an important role in stimulating recall of traumatic stressors, studies using different assessment techniques are needed to evaluate the validity of ASI abuse reports. In the current study, an instrument specifically designed to assess (the severity of) childhood and adult assault experiences is used as an external criterion, the Structured Trauma Interview (STI; Draijer, 1989). It includes multiple questions inquiring

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\(^2\) In the original manuscript this study was in press.
about specific forms of physical and sexual abuse. The responses given during the STI were considered the closest approximation for the presence of an abuse history.

This study concerns a further exploration of the ASI abuse questions accuracy, testing four hypotheses: (1) a lower incidence of lifetime physical and sexual abuse reports will be observed on the ASI compared to the STI; (2) this lower incidence will probably be found particularly among males, because compared to females, males are more often abused outside the family and the perpetrator restrictions in the phrasing of the ASI abuse questions may exclude these experiences; (3) assessment with the ASI will result in lower abuse rates than the STI due to the wording of the ASI questions, i.e. two simple, broad questions labelling physical and sexual assault experiences as “abuse.” Using this type of questioning, it is expected that relatively minor incidents in childhood - in terms of severity - will be underreported on the ASI; and (4) lower incidence of abuse reports on the ASI could be due to response bias in terms of social desirability. Assuming that having been assaulted is socially undesirable, any response bias should be toward denying such experiences (false negatives).

3.2 Method

3.2.1 Design and subjects

This study is part of a larger research project on psychiatric comorbidity and treatment outcome of a consecutive series of alcoholics and gamblers applying for treatment in a treatment center for substance use disorders in the Amsterdam area. This center, the sole treatment provider for alcohol use disorders and pathological gambling in the area, serves a population of approximately 1.5 million people. Study approval was obtained from the Center’s Internal Review Board and the Human Research Review Board, Academic Medical Center, University of Amsterdam.

To be included in this study, patients had to be entering treatment voluntarily at an in- or outpatient alcohol abuse treatment program at the center, have no severe cognitive impairments, and have sufficient command of the Dutch language. Patients had to remain in inpatient treatment for at least 30 days or in outpatient treatment for 3 weeks in order to complete the STI. This resulted in a study population of 274 individuals, who gave written
informed consent after all procedures were explained. However, 124 patients did not complete the two measures (ASI and STI). Administration of the two measures was not carried out blind with regard to four patients, and two patients were judged by their attending clinicians as too clinically unstable to participate. The current study is based on the responses of the remaining 144 patients (i.e. 53% of the target population; hereafter, study completers).

3.2.2 Instruments

The ASI 5th Edition (McLellan et al., 1992) has been developed for chemically dependent populations to assess alcohol and drug histories as well as problem severity in other domains (medical condition, employment, legal problems, family/social relations, and mental health). In the family/social domain of the ASI, reports of lifetime (excluding the past 30 days) and current (i.e. past 30 days) physical and sexual abuse by certain circumscribed perpetrators are assessed through two general questions (“Did any of the people we just mentioned - i.e. family members, partners/lovers, kids, good friends, neighbors, or people at work - ever/in the past 30 days abuse you physically, cause you physical harm?” Idem: “… abuse you sexually, force sexual advances or sexual acts on you?”). Abuse is coded as either absent or present. The lifetime and current abuse scores were combined to measure lifetime abuse. Instructions concerning physical abuse state that simple spankings or other punishments should not be counted as abuse, unless they were experienced by the client as extreme and unnecessary. Regarding sexual abuse, instructions are that clients’ reports of any type of unwanted advances of a sexual nature by a member of either sex should be counted. For this study, the European version of the ASI 5th edition (Kokkevi & Hartgers, 1995) was used (hereafter ASI), containing exact Dutch translations of the abuse questions.

The STI (Draijer, 1989) is an adapted version for clinical settings of an interview format designed for a Dutch nationwide study on incest (Draijer, 1988). The instrument is described in detail elsewhere (Draijer & Langeland, 1999). Several techniques, which are known to enhance disclosure and accuracy of child abuse histories and to minimize potential distress for interviewees, are incorporated in the STI, e.g. multiple questions in which terms as “abuse” are omitted, embedding of the abuse questions in a broader context of questions on family of origin to facilitate remembering one’s childhood, and extensive training of interviewers on countertransference. To assess child physical abuse, defined as severe
parental aggression (including step- and adoptive parents and primary caretakers) before age 16, the STI employs a modified version of the Conflict Tactics Scales (CTS; Straus, 1979). Severe parental aggression includes recurrent and chronic forms of physical violence frequently inflicting injuries, such as repeatedly being kicked or hit with fist or an object, being tied up. Child sexual abuse is defined as any reported pressured or forced sexual contact - ranging from fondling to penetration - experienced before age 16. If a patient reported abuse by more than one perpetrator at different times, the most impressive incident was chosen by the patient for more detailed inquiry. Adult abuse is defined as that occurring at age 16 or after. The screening question about adult physical abuse is “Have you ever been hit by someone?” (excluding physical violence clearly initiated by the patient as for example in street or bar fights). The screening question regarding adult sexual abuse is, “Have you ever been pressured or forced into sexual contacts against your wishes?” In contrast to the ASI, all possible perpetrators of physical or sexual abuse are systematically checked.

The four-item “Too Good” validity scale of the Personality Diagnostic Questionnaire-Revised (PDQ-R; Hyler & Rieder, 1987) was used to assess response bias in terms of social desirability.

3.2.3 Procedure

The ASI was administered at admittance to treatment by a trained staff member or research assistant. The STI was administered approximately 4-8 weeks after the ASI by trained research assistants. STI interviewers did not know results on the ASI.

3.2.4 Analyses

To test differences between groups of subjects, the $\chi^2$ test and Student’s $t$ test were used. The validity of the ASI questions was determined by (a) comparing the instruments’ prevalence rates, assessing specificity/sensitivity and positive and negative predictive values, (b) examining ASI perpetrator restrictions effects, and (c) examining response bias due to social desirability or abuse severity. For analyses purposes (a and b), STI data were organized in two ways: an original dataset including all possible perpetrators and a constructed dataset containing only perpetrators included in both the ASI and the STI. Furthermore, ASI false-
negative cases and consistent reports on both instruments were compared with respect to the severity of childhood physical and sexual abuse as measured with the STI in order to examine reporting bias due to abuse severity. Abuse severity indices included age of onset, chronicity (lasting longer than 1 year), and severity of sexual acts (ranging from fondling to penetration). The STI does not provide data on the severity of adult assault experiences. To address the issue of social desirable responses, the following groups were compared with respect to their scores on the PDQ-R validity scale: ASI physical abuse vs. no physical abuse; ASI sexual abuse vs. no sexual abuse; and cases in which patients' ASI and STI responses differed (i.e. inconsistent reports) vs. cases of consistent reports on both instruments.

3.3 Results

The 144 study completers were predominantly male (77%) and had a mean age of 41.2 years (SD = 9.2, range 23-66), with 70.8% between 31 and 50 years. Almost a quarter (24.3%) was married/cohabitating and 52.1% was employed. Most subjects (91.6%) were born in The Netherlands. The primary problem was alcohol in all cases, even where there was other drug use. All subjects met the DSM-III-R criteria for alcohol dependence (as measured with the Composite International Diagnostic Interview; Robins et al., 1988). Seventy-one (49%) subjects were in inpatient treatment. More than half of the subjects (58.3%) had previously been treated for alcohol problems: 20.1% once before and 38.2% more than once before (range 2-31 times). The average age of onset of regular alcohol use was 20.7 (SD 7.7), and the average number of years of regular use was 14.1 (SD 9.8). Study completers (n = 144) and noncompleters (n = 130) did not significantly differ in demographic characteristics, drinking history (i.e. age of onset/duration of regular drinking and alcohol treatment history), problem severity in several important life areas, and ASI reports of lifetime physical and sexual assault experiences. However, noncompleters were more often born outside The Netherlands (19.7% vs. 8.4%; χ² = 7.14, df = 1, p < .01) and were more often outpatients (72% vs. 51%; χ² = 13.41, df = 1, p < .001).

The ASI shows significantly lower abuse rates than the STI (Table 1, Columns A and B). The greatest difference is found in lifetime physical abuse rates (24% vs. 51%). Nearly all ASI physical and sexual abuse reports were consistent with reports subsequently obtained through the STI, indicating good specificity (Table 2). However, sensitivity of the ASI
Validity of the Addiction Severity Index

Table 1. Reports of lifetime physical abuse (PA) and sexual abuse (SA) using the ASI and STI without and with perpetrator restriction (STI original and STI constructed)

<table>
<thead>
<tr>
<th>Lifetime abuse reported</th>
<th>A: ASI</th>
<th>B: STI original</th>
<th>C: STI constructed</th>
<th>Significant differences</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Total patients (n = 144)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifetime PA reported</td>
<td>35</td>
<td>24</td>
<td>73</td>
<td>51</td>
</tr>
<tr>
<td>Lifetime SA reported</td>
<td>24</td>
<td>17</td>
<td>41</td>
<td>29</td>
</tr>
<tr>
<td>Male patients (n = 111)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifetime PA reported</td>
<td>22</td>
<td>20</td>
<td>51</td>
<td>46</td>
</tr>
<tr>
<td>Lifetime SA reported</td>
<td>13</td>
<td>12</td>
<td>23</td>
<td>21</td>
</tr>
<tr>
<td>Female patients (n = 33)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lifetime PA reported</td>
<td>13</td>
<td>39</td>
<td>22</td>
<td>67</td>
</tr>
<tr>
<td>Lifetime SA reported</td>
<td>11</td>
<td>33</td>
<td>18</td>
<td>55</td>
</tr>
</tbody>
</table>

questions is rather low, indicating an underestimation of abuse reports, especially of physical abuse among males (Table 1). The positive predictive value of the ASI is excellent for both lifetime physical (.97) and sexual abuse (1.00), whereas the negative predictive value of both physical abuse (.64) and sexual abuse is lower (.86).

Table 2. Contingency tables (2 x 2) of absence/presence of lifetime PA and SA reports according to the ASI vs. the original STI and the constructed STI

<table>
<thead>
<tr>
<th></th>
<th>STI original</th>
<th>STI constructed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PA absent</td>
<td>PA present</td>
</tr>
<tr>
<td>ASI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PA absent</td>
<td>69</td>
<td>40</td>
</tr>
<tr>
<td>PA present</td>
<td>2</td>
<td>33</td>
</tr>
<tr>
<td>Total</td>
<td>71</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>SA absent</td>
<td>SA present</td>
</tr>
<tr>
<td>ASI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SA absent</td>
<td>103</td>
<td>17</td>
</tr>
<tr>
<td>SA present</td>
<td>0</td>
<td>24</td>
</tr>
<tr>
<td>Total</td>
<td>103</td>
<td>41</td>
</tr>
</tbody>
</table>

STI original: PA: agreement 71%, sensitivity .65, specificity .97, positive predictive value .97, negative predictive value .64; SA: agreement 88%, sensitivity .71, specificity 1.00, positive predictive value 1.00, negative predictive value .86.

STI constructed: PA: agreement 83%, sensitivity .72, specificity .94, positive predictive value .89, negative predictive value .84; SA: agreement 89%, sensitivity .72, specificity .97, positive predictive value .92, negative predictive value .89.

Abuse rates in males are affected by the ASI restricted perpetrator screening, whereas rates in females are not (Table 1). For males, differences in physical abuse reports between the ASI and the STI decreased from 20% vs. 46% to 20% vs. 23% when using the constructed STI dataset, whereas differences in sexual abuse reports decreased from 12% vs.
21% to 12% vs. 14%. When evaluating the predictive power of the ASI using the constructed STI as criterion, in fact, the strongest change (i.e. decrease) occurred in sensitivity and negative predictive value of physical abuse questions (Table 2).

Contrary to our expectations, no significant differences in severity of childhood physical or sexual abuse were found between the “false-negative” cases and cases reported in both instruments. False-negative cases included both minor childhood incidents and severe childhood abuse histories. Finally, no significant differences in the PDQ-R validity scale were observed between patients with and without abuse reports on the ASI and between patients with consistent and inconsistent abuse reports on both instruments, indicating no response bias in terms of social desirability.

3.4 Discussion

In the present study, four hypotheses were tested. The first hypothesis, assuming a difference in abuse incidence rates on the instruments, was corroborated. Compared to the STI, the ASI showed a 27% (51% vs. 24%) lower incidence rate for lifetime physical abuse and of 12% (29% vs. 17%) for lifetime sexual abuse. Besides the effect of the type of questioning of the ASI, however, the higher disclosure of assault history on the STI can also be related to factors such as the extended interviewer training and the delicate interview flow to enhance memory retrieval (e.g. Draijer, 1990) as well as by factors such as stage of recovery or treatment effects since the STI was administered several weeks after the ASI. Ideally, both instruments should have been administered as close together to avoid confounding temporal effects. Unfortunately, such a more sophisticated design was outside the scope of this project. Additionally, the repetition of questioning about abuse during the study course may have increased the potential for enhancing recall of abusive experiences on the STI. To clarify this latter issue, future research could include a split-half design giving the measures to one-half of the sample in the reverse order.

Concerning the second hypothesis, prior results of a gender effect on the sensitivity of the ASI abuse questions (Langeland et al., 2001) were well replicated: abuse rates in males are affected by the ASI perpetrator restrictions, whereas rates in females are not. Controlling for ASI perpetrator restrictions, differences in abuse rates in males were substantially reduced. These artificial results concerning the predictive power of the ASI using the
constructed STI as criterion indicate reasonable sensitivity and good specificity as well as reasonable to good positive and negative predictive values. In fact, the psychometric performance of the ASI is more promising when evaluated against the STI compared to the measure of exposure to traumatic events included in Composite International Diagnostic Interview Section Posttraumatic Stress Disorder (CIDI-PTSD; Peters et al., 1996) used in our earlier report (Langeland et al., 2001). One can only speculate about the causes of this difference in accuracy of the ASI when compared to the two other assessment methods. There is a difference between the STI and the CIDI-PTSD in the stressor criterion, with the latter focusing on trauma, assessing events meeting the A criterion for DSM-III-R/ICD-10 PTSD, whereas assessment with the STI is based on inquiring about specific behaviors. Other relevant factors could be interviewer effects (e.g. gender and extension of training on trauma assessment), differences in assessment time intervals, or number and type (i.e. intra- or extrafamilial) of perpetrators reported.

The third hypothesis (that mainly minor incidents in childhood would be underreported on the ASI due to the term “abuse” in the screening questions) was not supported. Data indicating that differences in stressor severity were not related to detection of abuse with the ASI, implying that “false negatives” included severe childhood abuse experiences, support earlier cautions concerning the use of the ASI abuse questions as a screen for trauma (Najavits et al., 1998a; Cacciola et al., 1999). Further examination of the nature of underreporting is important, because possible influences of underreporting on estimates of associations between abuse reports and other variables need to be considered.

Similar to previous studies (Dill et al., 1991; Leserman et al., 1995; Langeland et al., 2001), physical abuse was more frequently underreported than sexual abuse. This underreporting may be a consequence of, for example, the fact that severely aggressive punitive events are often perceived to be deserved and not viewed by victims as abusive (e.g. Carlin et al., 1994). This may apply to physical abuse by parents and by (ex)partners in adulthood. Therefore, future studies should include subjects’ perception of abuse status to examine reporting bias due to minimization or denying.

The fourth hypothesis (that the validity of ASI self-reports is jeopardized by social desirability response sets) was not supported. This finding is in line with the one reported on the Childhood Trauma Questionnaire by Bernstein et al. (1994), utilizing the same measure
for response bias. However, a more sophisticated measure of social desirability may lend greater support to the reliability of the ASI abuse questions (Saunders, 1991).

Taken together, our findings suggest that the ASI questions have certain limitations considering their usefulness as an initial, brief assessment procedure for identifying patients with physical and sexual assault experiences. The caveats we have identified in this area require users of the ASI to be informed and aware of its potential limitation, in particular in male clients. Our data highlight the relevance of a broader ASI perpetrator screening, because males, who are more often victimized by extrafamilial perpetrators than females, clearly outnumber females among persons seeking alcohol treatment. However, the fact that the underestimate level of abuse histories in females did not change after adjustment for perpetrator restrictions indicates the need for more modifications in the ASI questions. "False negatives" were generally not minor incidents, implicating that efforts should be made to improve the sensitivity of the ASI questions. From an epidemiological point of view, 72% sensitivity for both physical and sexual abuse when adjusting for perpetrator restrictions is marginal at best. A point for further research is also the effect of reliability of ASI abuse reports on sensitivity and specificity. Cacciola et al. (1999) reported poor test-retest reliability for physical abuse ($k = 0.35$), whereas that for sexual abuse was fair ($k = 0.45$). In their sample of 108 male alcohol- and/or cocaine-dependent patients, the stage of recovery may have affected reliability estimates, administrating the ASI at treatment entry and later on at entry in an aftercare project.

Certain methodological limitations of the study should be mentioned. Only 53% of the target population completed both instruments. Although no indications for selectivity were found between the 144 study completers and the 130 noncompleters, it should be noted that, for example, early treatment dropouts could not be included in the target population due to practical reasons. Thus, the generalizability of results is limited to patients who remained in treatment for at least 30 days on inpatient units or 3 weeks at the outpatient setting. Outpatients and patients born outside The Netherlands were underrepresented in the sample. Perhaps the most significant limitation is the use of a retrospective method as criterion for abuse history assessment. Since no corroborating evidence was sought for any reported abuse case because of the need for confidentiality, there is no guarantee that these reports are accurate. This limitation is, however, inherent to the current state-of-art of studies on physical and sexual abuse. There are indications that the extent of underreporting rather than
overreporting of childhood abuse is the major problem in relying on retrospective abuse accounts (Draijer, 1990; Williams, 1994; Widom & Shepard, 1996; Widom & Morris, 1997; Chu et al., 1999; Fergusson et al., 2000). We considered the responses given during the STI the closest approximation for the presence of an abuse history. Still, it is possible of course that attention-seeking subjects report factitious abuse histories in an interview situation. Further research should test this hypothesis.

Considering the reported rates of lifetime physical and sexual abuse (STI: 51% and 29% respectively) and the importance of its acknowledgement during treatment to advance progress in recovery, early assessment of abuse history should be a critical part of treatment planning for chemical-dependent patients. However, recognition of abuse by early assessment or further clinical assessment without using this information in patients’ evaluations resolves little (see Eilenberg et al., 1996). Further clinical assessment of patients reporting assault histories should include structured interviews as for example the STI or the Childhood Trauma Interview (Fink et al., 1995). Because childhood neglect, which often co-occurs with childhood abuse, may even be of greater importance for the psychosocial development of the child than the abuse, questions on parental dysfunction and neglect should also be included (Draijer & Boon, 1995; Draijer & Langeland, 1999).

### 3.5 Conclusions

Our findings suggest that a modified version of the ASI questions can be useful as an initial, brief assessment procedure for identifying persons with physical and sexual assault experiences in patients with a substance use disorder. The use of such a modified version of the ASI abuse questions is of paramount importance for treatment of substance abuse populations, in which assault experiences have been frequently reported. The sensitivity of the ASI method may be improved with relatively small adjustments. We recommend that the next version of the ASI probes for all possible perpetrators and omits the term “abuse” in the wording of the questions. Questions inquiring about abuse experiences that have neutral wording should be preferred like, for example, “Have you ever been pressured or forced to have some type of unwanted sexual contact?” It is also suggested to include an opening preface to the subsequent abuse questions to smooth the interview flow. In addition, for a more adequate initial assessment of traumatized patients, information level in the ASI may be
improved by adding more detailed questions about the nature and severity of the abuse and age of onset. Finally, more specific training of ASI administrators in the assessment of physical and sexual abuse is suggested.