Childhood trauma in treated alcoholics. Prevalence and relevance for clinical impairment
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Sensitivity of the Addiction Severity Index Physical and Sexual Assault Items: Preliminary Findings on Gender Differences

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Abstract
Objective: Evaluation of the Addiction Severity Index (ASI) as a screen for identifying sexual and physical assault histories. Method: The sensitivity and specificity of the ASI assault items were examined in 146 alcoholic patients with the assault questions of the Composite International Diagnostic Interview posttraumatic stress module as external criterion. Results: The sensitivity of the ASI items was lower than their specificity for both physical (sensitivity = .35, specificity = .83) and sexual abuse (sensitivity = .69, specificity = .94). These findings indicate an underestimation of such abuse histories in male patients due to screening for a narrow range of possible perpetrators. Conclusion: The ASI method as a screen for sexual and physical assault histories could be improved, considering that men clearly outnumber women in persons applying for alcohol treatment.

2.1 Introduction

The 5\textsuperscript{th} edition of the Addiction Severity Index (ASI; McLellan et al., 1992), a structured interview, has become the most widely used intake and outcome evaluation tool in addiction research and treatment contexts. It covers problem severity in seven domains: medical status, employment status, psychiatric status, legal problems, alcohol use, drug use, and family/social relations. The family/social domain includes two items assessing lifetime physical and sexual assault, reflecting the notion that the systematic inquiry about abusive histories is clinically relevant. These experiences may play an important role in the etiology of a number of psychiatric disorders as well as in relapse potential of substance abusers (Palmer et al., 1995). Given the wide use of the ASI for clinical purposes, information on the utility of the abuse questions is of great importance.

1 This study has been published as a Research Report in Eur Addict Res 2001; 7:193-197.
Until now, findings on the utility of the ASI assault items for identifying patients with abuse histories have not been very promising. Among 204 substance abuse clients, males (n = 159) more often reported childhood physical and sexual abuse in a self-report questionnaire compared to the ASI. Females (n = 45), however, more often disclosed physical abuse in the ASI, but reported sexual abuse more often in the questionnaire (Simpson et al., 1994). In 110 cocaine-dependent outpatients, the ASI items did not serve as a particularly sensitive screen for abuse histories (Najavits et al., 1998a). The sensitivity of the ASI items was lower than their specificity for both physical abuse (sensitivity = .50, specificity = .71) and sexual abuse (sensitivity = .46, specificity = .96). Finally, in 108 alcohol- and/or cocaine-dependent male patients, test-retest reliability was poor for physical abuse (k = 0.35) and fair for sexual abuse (k = 0.45) (Cacciola et al., 1999).

In the present article, efforts are made to clarify why the ASI abuse items are not very sensitive, hypothesizing that the rather low sensitivity may be due to the narrow screening for possible perpetrators of abuse. The ASI screens for abuse perpetrated by family members, partners/lovers, kids, good friends, neighbors or people at work, thereby excluding a large range of possible nonfamilial perpetrators. We assume that, when comparing ASI abuse reports with those obtained by other instruments which include a broader range of perpetrators, sensitivity rates will be affected (i.e. will decrease) by the amount of abuse perpetrated by persons for whom the ASI does not screen. Based on the fact that nonfamilial physical or sexual assault is more common in males than in females (Bachman, 1994), gender differences in sensitivity rates are expected. The present study was designed to replicate and extend earlier findings on the sensitivity and specificity of the ASI abuse items. The assault questions included in a psychometrically validated interviewer-administered instrument, the Composite International Diagnostic Interview-Post Traumatic Stress Module (CIDI-PTSD), were used as the standard of comparison. The CIDI-PTSD allows for the identification of a broader range of perpetrators of physical and sexual assaults. The major extension pertains to the question of ASI perpetrator restriction effects: will the sensitivity of the ASI abuse items increase when considering these restrictions?
2.2 Material and methods

The present data were collected as part of a larger study 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. As the sole treatment provider for inpatient and outpatient alcohol use disorders and pathological gambling in the area, this center 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.

Inclusion in this study required that patients had entered an inpatient or outpatient alcohol abuse treatment program on a voluntary basis, the treatment excluded the detoxification program of 2 weeks, patients had to have a sufficient command of the Dutch language and had to be free of severe cognitive impairments. In addition, to be included in the basic research protocol - of which this study is only one part – the patients had to remain in inpatient treatment for at least 30 days or in outpatient treatment for at least 3 weeks. The latter criterion is a practical one: it is based on the minimum time periods necessary to administer all instruments included in the basic research protocol. The inclusion criteria resulted in a target population of 274 patients who gave written informed consent after all procedures had been explained. The present study is based on the responses of the 146 participants (53% study completers) who completed both the ASI and the CIDI-PTSD, with both interviews having been administered by different interviewers.

In 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 items (“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?” or “... abuse you sexually, force sexual advances or sexual acts on you?”). The ASI lifetime and current abuse scores were combined to measure lifetime abuse. For this study, the European version of the ASI (Kokkevi & Hartgers, 1995) was used, containing exact Dutch translations of the original abuse items.

The first item of the CIDI-PTSD (Peters et al., 1996) assesses the history of exposure to potentially traumatic events that meet the A (stressor) criterion of the DSM-III-R PTSD and ICD-10 PTSD, such as a natural disaster, combat, captivity, a serious accident or narrow
escape, physical assault and rape. The respondents are provided with a card which lists events corresponding to examples given in DSM-III-R and ICD-10. The examples for abuse experiences in the Dutch CIDI version are: ‘Physical attack or assault’ and ‘Rape, sexual assault, or incest’.

On admission to treatment, the ASI was administered by carefully trained interviewers who were consistently monitored in the use of the ASI. Twenty-one interviewers conducted ASI interviews for the present paper, including 13 staff members and 9 research assistants between whom no significant differences were observed in ASI sexual and physical abuse reports. Administration of the ASI always preceded that of the CIDI. The time interval between administration of both instruments varied from about 5 days to 6 weeks, with generally smaller intervals in outpatients for practical reasons. The CIDI interviews were conducted by a group of 14 interviewers who attended an extensive 5-day training course at the Dutch WHO CIDI training and reference center. Information obtained with the ASI was used for both treatment plans and research, whereas the CIDI data were used for research purposes only.

The utility of the ASI items was determined by comparing the prevalence rates of the instruments, including $\chi^2$ analysis, and assessing their specificity and sensitivity. For determining ASI perpetrator restriction effects on the sensitivity and specificity of the abuse items, CIDI-PTSD data were organized in an original dataset including all possible perpetrators and a constructed dataset containing only perpetrators included in the ASI, thus excluding several possible nonfamilial perpetrators. Perpetrator selection for the constructed dataset was based on the qualitative information provided by the subjects in terms of examples given of the traumatic events experienced. This information was systematically gathered to make sure that reported traumatic events did meet the A (stressor) criterion for DSM-III-R PTSD and ICD-10 PTSD.

2.3 Results

2.3.1 Subjects

The 146 subjects were predominantly male (77%), had a mean age of 41.0 years (SD = 9.1, range 23-66) and were evenly distributed between treatment settings (inpatients/outpatients).
All subjects met the DSM-III-R criteria for alcohol dependence (as measured with the CIDI) (Robins et al., 1988), and 26 (17.9%) subjects met the DSM-III-R criteria for PTSD (females 27.3%, males 15.2%). Study completers (n = 146) and noncompleters (the remaining 128 subjects of the target population) did not significantly differ in demographic characteristics (sex, age, marital status, educational level), problem severity in the ASI domains, and ASI physical and sexual assault reports. Among noncompleters there were more outpatients than among completers (73% vs. 50%; $\chi^2 = 14.77$, $df = 1$, $p < .000$).

2.3.2 Prevalence rates, sensitivity and specificity

Male patients were more likely to report an abuse history, in particular physical abuse on the CIDI-PTSD than on the ASI (Table 1). In females, no significant differences in abuse rates between instruments were found. Additionally, on the CIDI-PTSD, outpatients more often reported physical abuse than inpatients (27.4% vs. 13.7%; $\chi^2 = 4.20$, $df = 1$, $p < .05$), whereas for the ASI physical abuse reports no difference was found between treatment settings. For sexual abuse reports on both instruments, no relations were found with treatment modality.

**Table 1.** Reports of lifetime physical abuse and sexual abuse in two formats: the European version of the ASI and the CIDI-PTSD

<table>
<thead>
<tr>
<th>Lifetime abuse reported</th>
<th>EuropASI</th>
<th>CIDI original database</th>
<th>CIDI constructed dataset</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Total group of clients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No abuse reported</td>
<td>96</td>
<td>65.8</td>
<td>69</td>
</tr>
<tr>
<td>PA only reported</td>
<td>25</td>
<td>17.1</td>
<td>51</td>
</tr>
<tr>
<td>SA only reported</td>
<td>13</td>
<td>8.9</td>
<td>11</td>
</tr>
<tr>
<td>Both PA and SA reported</td>
<td>12</td>
<td>8.2</td>
<td>15</td>
</tr>
<tr>
<td>Male clients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No abuse reported</td>
<td>81</td>
<td>71.7</td>
<td>54</td>
</tr>
<tr>
<td>PA only reported</td>
<td>18</td>
<td>15.9</td>
<td>44</td>
</tr>
<tr>
<td>SA only reported</td>
<td>9</td>
<td>8.0</td>
<td>8</td>
</tr>
<tr>
<td>Both PA and SA reported</td>
<td>5</td>
<td>4.4</td>
<td>7</td>
</tr>
<tr>
<td>Female clients</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No abuse reported</td>
<td>15</td>
<td>45.5</td>
<td>15</td>
</tr>
<tr>
<td>PA only reported</td>
<td>7</td>
<td>21.2</td>
<td>7</td>
</tr>
<tr>
<td>SA only reported</td>
<td>4</td>
<td>12.1</td>
<td>3</td>
</tr>
<tr>
<td>Both PA and SA reported</td>
<td>7</td>
<td>21.2</td>
<td>8</td>
</tr>
</tbody>
</table>

PA = Physical abuse; SA = Sexual abuse.

\(^1\) ASI versus CIDI original dataset: $\chi^2 = 9.42$, $df = 1$, $p < .003$.

\(^2\) ASI versus CIDI original dataset: $\chi^2 = 11.12$, $df = 1$, $p < .002$.

\(^3\) ASI versus CIDI original dataset: $\chi^2 = 12.44$, $df = 1$, $p < .001$.

\(^4\) ASI versus CIDI original dataset: $\chi^2 = 13.89$, $df = 1$, $p < .001$. 

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For both physical and sexual abuse, sensitivity was lower than specificity. The sensitivity of the ASI physical abuse question was .35 (23/66), whereas the specificity was .83 (66/80). The sensitivity of the ASI sexual abuse question was .69 (18/26) and the specificity was .94 (113/120).

The sensitivity of the ASI questions increased considerably when we compared the ASI scores with the constructed CIDI-PTS dataset containing only perpetrators included in the ASI. The sensitivity of the physical abuse question increased from .35 to .60, whereas its specificity nearly stayed the same (i.e. increased from .83 to .84). The sensitivity of the sexual abuse question slightly increased from .69 to .72, and its specificity slightly decreased from .94 to .91. Moreover, the significant differences in prevalence rates between the ASI and the CIDI-PTS original dataset disappeared when we used the constructed CIDI-PTS dataset.

2.4 Discussion

The results of this study on alcohol-dependent patients replicate earlier findings (Najavits et al., 1998a) demonstrating that the ASI physical and sexual abuse items, though quite specific, did not constitute a particularly sensitive screen for abuse history when compared to an external criterion that included all possible perpetrators. However, when we considered the restricted ASI perpetrator screening, the sensitivity of the ASI assault items increased, especially in males. Findings indicated a fair validity of the ASI items for both physical (sensitivity = .60, specificity = .84) and sexual abuse (sensitivity = .72, specificity = .91).

As expected, a gender effect on the sensitivity of the ASI items is found. No significant differences were found in lifetime abuse reports on both instruments in females, whereas among males an underestimation of abuse histories by the ASI method was found, especially of physical abuse. This underestimation of abuse in males disappears when the ASI perpetrator restrictions are considered. This is in accordance with results published in the literature that the abuse of males is more often committed by perpetrators excluded in the ASI, for example by friends of the family, authority figures and strangers. Because males clearly outnumber females among persons applying for alcohol treatment, these results highlight the relevance of a broader perpetrator screening.
The findings need to be considered in the light of certain limitations. Both our instruments are based on retrospective abuse reports for which objective verification is absent, implying that the potential for distortion in the recall of events either in the sense of false negatives or false positives cannot be excluded. Further, since the elicitation technique of abuse histories differs between the two instruments (card method vs. listening), the perpetrator variable could not be varied while keeping the method constant. Our abuse rates may have been affected - in the sense of more affirmative answers - by the more direct method of the CIDI-PTSD using a card with examples of traumatic events which is handed to subjects. Other possible reasons why the CIDI method may have obtained more abuse reports include: (1) use of the information not for treatment plans but only for research purposes, (2) repetition of inquiries about abuse - the CIDI always followed the ASI - which may have increased the potential for enhancing recall of abuse histories, and (3) confounding temporal effects due to the time interval between the for further administration of the two instruments, such as stage of recovery and treatment effects. Moreover, differences in reliability of the ASI and the CIDI may have affected the estimates of sensitivity and specificity. Evidence of the low reliability of the ASI abuse items (Cacciola et al., 1999) clearly indicates the need studies evaluating possible factors affecting reliability, such as malingering and stages of recovery. In the study of Cacciola et al. (1999), the time interval between the administration of the ASI was 30-90 days, with the first ASI administered as part of an intake evaluation and the second as part of a baseline assessment for an aftercare study. Rates of both physical and sexual abuse dropped at the second assessment. Finally, only 53% of the target population participated in the study with a male/female ratio of 4:1 which is in line with the literature on alcohol treatment clients. No indications for selectivity were found between the 146 study completers and the 128 noncompleters. However, the target population included only persons who agreed to participate in the study. This is a self-selected group that may be quite different from those who choose not to participate or from early treatment dropouts who were excluded for practical reasons. For example, dropping out early due to relapse seems to be associated with abuse histories (Palmer et al., 1995). Nevertheless, even if there are differences in abuse rates between participants and nonparticipants, this may well be of no consequence for the internal validity of results. There may, however, be problems with regard to the generalizability of results.
Some conclusions and recommendations can be offered. Considering the current ASI measurement aims regarding perpetrators, we recommend that the next version of the ASI probes for all possible perpetrators. Furthermore, some factors which potentially enhance the recall of abusive experiences could be considered, such as the interview flow (e.g. an opening preface to the subsequent abuse items) and more extended training of interviewers on these specific items. Responding sensitively to subjects’ possible feelings such as shame and guilt has been described as essential to obtaining accurate self-reports of sexual and physical abuse (Jacobson & Richardson, 1987). Lastly, further psychometric studies would help to establish the effects of sample variations (e.g. gender, age) on the utility of the ASI items. Since assessment methodology plays such an important role in stimulating the recall of traumatic stressors (Draijer, 1990), it will be worthwhile to evaluate the validity of the ASI items in relation to other instruments, in particular those specifically designed to measure (the severity of) childhood and adult assault experiences.