

Variation in AUDIT (Alcohol Use [correction of Used] Disorder Identification Test) scores within the first weeks of imprisonment.

Brigitte Maggia, Sandrine Martin, Corinne Crouzet, Pascal Richard, Pierre Wagner, Jean-Louis Balmès, Bertrand Nalpas

▶ **To cite this version:**

Brigitte Maggia, Sandrine Martin, Corinne Crouzet, Pascal Richard, Pierre Wagner, et al.. Variation in AUDIT (Alcohol Use [correction of Used] Disorder Identification Test) scores within the first weeks of imprisonment.. Alcohol Alcohol, 2004, 39, pp.247-50. inserm-00097220

HAL Id: inserm-00097220

https://inserm.hal.science/inserm-00097220

Submitted on 21 Sep 2006

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

VARIATION IN AUDIT (Alcohol Used Disorder Identification Test) SCORES WITHIN THE FIRST WEEKS OF IMPRISONMENT

Brigitte Maggia[1] , Sandrine Martin[1] , Corinne Crouzet[1] , Pascal Richard[2], Pierre Wagner[2] ; Jean-Louis Balmès[1] ; Bertrand Nalpas[1, 3].

[1] Comité Départemental de Prévention de l'Alcoolisme (CDPA), Nîmes , France
[2] Unité Pénitentiaire de Consultations et de Soins Ambulatoires, Nîmes, France
[3] Inserm U370, Paris, France

Correspondence and requests for reprints to:
B. Nalpas, MD, PhD
CDPA 30
539B Av. J. PROUVE
30900 NIMES, France

Tel : 33 (0)4 66 29 25 13
E-mail : **bnalpas@bsi.fr**

Key-words : alcoholism, screening, prison, AUDIT, offender

ABSTRACT

AIM: Although the prevalence of alcohol problems amongst detainees is suspected to be high, it seems that only the most flagrant problems are detected, thus considerably restricting the field for the intervention of experts in alcohol abuse and not providing an opportunity for preventive efforts. This study examined the re-test reliability of AUDIT (Alcohol Use Disorder Identification Test) in screening prisoners

METHOD: AUDIT was administered for the first time on the day of entry to prison and again about 15 days later. The results were analysed according to two AUDIT thresholds: a score of 8 or higher and 12 or higher.

RESULTS: Of 75 consecutive entrants tested, 47 male prisoners completed the study. At the first administration, 19.1% of these 47 men met criteria for a probable alcohol problem but this percentage rose to 59.6% on the second occasion (p=0.0001). The proportion of subjects with a score 12 or higher (probably dependent) was 10.6% the first time versus 42.6% the second time (p=0.0001). In the 19 who scored positive at the 2nd administration only, changes in answers to the 10 items were coherent with a total score growing from 3.0 to 18.1 (p=0.0001). No prisoner had a lower AUDIT score on the 2nd administration. As alcohol problems are not routinely considered during the medical and biological examination at entry, no confirmation of the AUDIT results could be obtained, although those obtained at the second administration fitted well with the prevalence rates in previous reports.

CONCLUSION: AUDIT, for the purpose of giving a prevalence estimate or to enter appropriate prisoners into more detailed assessment or interventions, should not be conducted immediately at entry, but some weeks later.

INTRODUCTION

Although questions have long been asked concerning the links between crimes and alcohol intake at the time of the event, alcohol problems in prisoners have been taken into account only in recent years.

An alcohol problem in a prisoner is evident when the crime is drink-driving or when there are symptoms of alcohol dependence or abuse but less severe alcohol problems are ignored. In France, the prevalence of alcohol problems in prisoners has been little considered. In a prison study in 1992 in Dijon (France) Michaud et al. (2000), found , 29% were CAGE (Mayfield et al, 1974**)** positive and, De Beaurepaire and Hiriart (1997) found a rate of 56% CAGE positive in Fresnes (France) . Others screening instruments were recently tested in prisoners (Peters et al, 2000) and it was concluded that Alcohol Dependence Scale (ADS) and the Addiction Severity Index (ASI) - Drug use section were the most efficient. However, no French version of ADS is available and ASI is not used in a current practice.

We decided to screen for alcohol problems within a prison population using the AUDIT questionnaire (Alcohol Used Disorder Identification Test), an instrument that tends to detect earlier cases than CAGE. This questionnaire, which was developed by the World Health Organisation (Babor et al., 1992) comprises 10 items, covering three distinct areas: alcohol consumption (item 1 to 3), dependence and its consequences (item 4 to 10). It enables the detection of alcohol consumption levels which cause a problem, and targets numerous populations (Reinert and Allen, 2002). To our knowledge, AUDIT has never been applied to a prison population. Perhaps because of the psychological reactions linked to incarceration, responses over time may not be stable We therefore compared the scores at two points in time.

SUBJECTS AND METHODS

Over a period of 6 months, the AUDIT questionnaire was administered to consecutively to all new prisoners entering the Nîmes prison. The only criteria for exclusion were an insufficient understanding of the French language or refusal to participate. The prisoners had all been given short sentences of no more than one year, or were awaiting transfer to another institution if their sentence was longer. The following basic data were collected: gender, date of birth and principal offence committed.

AUDIT was administered by the physician during the obligatory medical examination at entry after sentencing. All prisoners were alcohol-free at that time. Prisoners were asked to repeat the test , on a voluntary basis, about 15 days later and this was performed by a clinical psychologist who was not aware of the previous AUDIT results.

Both interviewers were asked to read the 10 Audit questions slowly and clearly in a neutral voice and to enter the response given by the prisoner. The results were analysed according to two AUDIT thresholds of positivity: a score of 8 or higher (the threshold recommended by the WHO as indicating a probable alcohol problem), and a score of 12 or higher as indicating probable alcohol dependence (Conigrave et al, 1995; Saunders and Lee, 2000)

ANALYSIS

The percentages of positive scores over the two administrations were analysed using tests for distribution (Chi^2, Fisher) and concordance (MacNemar). The means were compared using non-parametric tests for paired series. The threshold of statistical significance was fixed at 0.05. The data were analysed using the SPSS 10.0 software (SPSS Inc. Chicago, Illinois, USA).

RESULTS

At entry, 75 consecutive prisoners completed the questionnaire without any initial refusal. Of these, 49 answered the questionnaire a second time and constituted the study sample. The reasons for which 26 subjects could not answer the questionnaire a second time were as follows: release (n =9), transfer (n=11), working on an outside site (n=2), refusal (n=4, 8.1%).

Forty-seven of the 49 study subjects were men, with a mean age of 27.3 years (±8 years) and the analysis omits the only two women, to increase the homogeneity of the sample.

The reasons for imprisonment were as follows: 21 (44.6%) for theft or fraud, 10 (21.3%) for wilful grievous bodily harm, 5 (10.6%) for sexual crimes or misdemeanours, 4 (8.5%) for offences against the law on illegal drugs, 2 (4.3%) for assault, 2 (4.3%) for crimes or misdemeanours involving children, 2 (4.3%) for manslaughter or involuntary bodily harm and 1 (2.1%) for offences against immigration laws.

At first administration of the questionnaire, 9 (19.1%) of the 47 prisoners had a score equal to or above 8, including 5 with a score of 12 or higher. On the second administration, these 9 subjects had not modified their responses, and none of their scores fell below 8; their

mean scores during the first and second administrations of the questionnaire were not statistically different (14.8±7.9 versus 18.1± 7.4, NS) and there was no striking variation when each item was specifically considered (Table 1).

Of the 38 individuals (80.9%) with a score lower than 8 at the first administration, 19 (50% of the 38) did not modify their responses the second time, with mean scores of 2.3±2.1 versus 3.7±2.8, respectively, a non-significant difference (table 1). Conversely, the remaining 19 individuals (50%) increased their scores to over 8, and thirteen of them had a score of 12 or higher; their mean scores rose significantly between the first and the second questionnaire (3± 2.4 versus 18.1± 8.7, p=0.0001). Item-by-item analysis for this sub-group showed that the increase in the total score was not only due to an increase in items dealing with quantity and frequency of alcohol consumption but also in those relative to dependence and consequences of heavy drinking; indeed, while mean scores to items 4 to 10 were very close to or equal to zero at 1st administration, they all increased at the second administration (table 1). Finally the values recorded for the 10 items at the 2nd administration in these 19 prisoners were similar to those recorded from the 9 prisoners being AUDIT positive at both administrations.

Overall, at the first administration, 19.1% of the sample had an alcohol problem detected according to the AUDIT criteria, and this percentage rose to 59.6% on the second occasion, the difference being highly significant (p=0.0001) (Figure 1); in addition, the proportion of subjects with a score equal or higher than 12 strikingly increased from 10.6% at the first time to 42.6% at the second (p=0.0001). Altogether, in relative terms, 28 (19 always negative and 9 always positive) among the 47 subjects studied (59.6%) were identified the same way both times; although the Spearman's correlation coefficient was statistically significant (p=0.03), its value was low (r=0.31) and so it was for the agreement between both administrations (kappa=0.27). Changes to responses between the first and second administrations were not correlated to the reasons for imprisonment. When results of the second AUDIT administration were considered, 65% of those incarcerated for violence or drug use/dealing (n=37) scored positive while the 3 convicted for involuntary bodily harm or for offences against immigration laws scored negative.

DISCUSSION

Our results, obtained in a non-selected sample of prisoners, demonstrates that the answers to a screening instrument for detection of alcohol abuse, i.e. the AUDIT

questionnaire, varied according to time when administered therefore raising doubt about its reliability in such a population.

The AUDIT questionnaire is widely used throughout the world. Initially used in hospital emergency rooms, AUDIT has since been tested in numerous populations of sick or apparently healthy individuals. The results have made it possible to conclude that even if minor variations could be seen for certain items from one sub-group to another, the instrument is multicultural and thus can be used in all populations; the only precaution necessary is to differentiate the thresholds of positivity as a function of gender (6 for women and 8 for men) (Reinert and Allen, 2002).

In the literature, the stability of responses to AUDIT over time is deemed satisfactory. Indeed, in two separate studies conducted in different sub-groups of population, and by measuring variations in the responses at an interval of 15 days, the correlation between scores ranged from 0.92 (Lennings, 1999) to 0.64 (Maisto et al., 2000); similar results were observed when the interval between two administrations was longer (Bradley et al, 1998; Daeppen et al., 2000). Finally, a recent study showed that in the general population agreement between answers is better in low than in high alcohol consumers but that the overall test-retest reliability of the AUDIT to detect high-risk drinkers is satisfactory (Selin, 2003).

On the contrary, our results showed that AUDIT lacked stability when it was applied to an incarcerated population. Indeed, 40% of subjects changed category at the second AUDIT administration. This change was always in the same direction, i.e. towards a worse score, and the proportion of subjects identified by AUDIT as having an alcohol problem rose from 20 to nearly 60%. Such a critical variation was not observed in a previous study aiming to compare the effectiveness of 8 different screening instruments (not including AUDIT) for detecting alcohol/drug abuse in prisoners (Peters et al, 2000); indeed the test-retest reliability performed in 60 prisoners was always high (more than 0.8). However, this study and ours are hardly comparable in this regard since the interval time between the two administrations was 3 days and 2 weeks, respectively and, more importantly, while Peters performed the first administration a couple of days after admission to the prison we did it on the day of entry and it could not be excluded that the shock of imprisonment might have biased the initial answers. It should also be noted that, in our study, the items which varied the most, in absolute values, from the first to the second administration were those relative to the frequency of consumption and the quantity consumed; this observation has already been pointed out using AUDIT (Karno et al., 2000; Medina-Mora et al., 1998; O´Hare and Sherrer 1999) and might be related to the generalised denial which prevails in this respect (Batel et al,

2000; Gaussot 2000). Given that two different examiners, a physician and a psychologist, participated to the study, an inter-rater reliability test should have improve the interpretation of the results but we were not able to perform it for technical and administrative reasons. We can't exclude that variations in answers might be due to a different presentation of the questionnaire but, this should be slight since each investigator was asked to only read the questions and since Audit scoring system depends firstly on the sincerity of the answers. Biases which could affect the self-reporting of symptoms in a prison population might operate in either direction. A bias towards reporting more severe dependence at entry to the prison might occur because some prisoners try to obtain tranquillisers medicines by exaggerating symptoms. There was no evidence that this was occurring in the present study – there was, if anything, minimisation of symptoms at entry. There was no obvious incentive to exaggerate symptoms at the second testing, such as 'rewards' for be getting on to a 'treatment programme'. Finally, as the total score at first administration was never given to participants and as no recall of the previous answers was done before the second administration, this also contributed to minimized memory bias. Therefore it appears that changes in AUDIT scores mainly reflect the difference in time of administration.

Faced with such a lack of reliability in AUDIT scores, legitimate questions can be raised about the true prevalence of alcohol problems in our prison population. Indeed, the AUDIT results could not be confirmed by laboratory data, because the medical examination carried out at entry into the prison did not include the biological parameters (transaminases, GGT, etc.). However, because of a lack of sensitivity, these parameters, even if they had been available, would still not have made it possible to reach a firm diagnosis. Moreover, as in another report (Peters et al, 2000), no objective measures of alcohol abuse or dependency history were available from institutional records to independently corroborate the self-report information.

What could help to interpret our results is that the frequency of alcohol problems observed according to the AUDIT scores at the second administration in the sample studied (nearly 60%) was similar to that reported in prison populations by other authors in France (De Beaurepaire and Hiriart, 1997) as well as in other countries (Mason et al., 1997); moreover the changes in answers were coherent, more severe items tending to be acknowledged on the second occasion; finally the refusal rate for the second occasion was low, less than 10%, although the test was administered on a voluntary basis, thus favouring more confidence in the results. As also already reported, these alcohol problems were serious since, at the 2nd AUDIT administration, two-thirds of the subjects scoring positive had a score

higher than 12, a threshold above which alcohol dependence is likely ; this also confirm the potential link between alcoholism and antisocial behaviours.

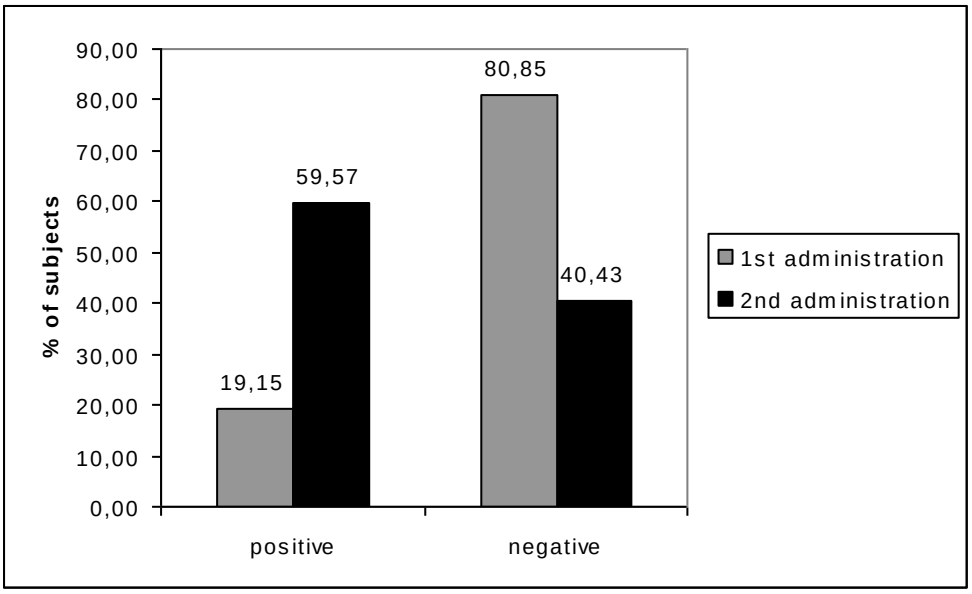
Conclusion **A**lthough our findings cannot be considered as definite owing to lack of external confirmation of AUDIT scores, they suggest that screening by AUDIT questionnaire for the purpose of giving a prevalence estimate, or to enter appropriate prisoners into more detailed assessment leading to intervention programme(Brooke et al., 1998; Michaud et al., 2002). should not be conducted immediately at entry, but some weeks later.

Table 1 : ANSWERS (MEAN+/-SD) TO EACH AUDIT ITEM AT 1ST AND 2ND ADMINISTRATIONS

Item	AUDIT SCORE					
	Negative[1] then positive[2] (n=19)		Always positive (n=9)		Always negative (n=19)	
	1st	2nd	1st	2nd	1st	2nd
1	1.4 +/-1.1	2.8 +/-0.8	2.9 +/-1.0	3.2+/-0.8	1.4+/-1.2	1.4+/-1.1
2	0.9 +/-1.1	2.5 +/-1.3	3.3 +/-0.7	2.7+/-1.1	0.7+/-1.1	1.0+/-1.3
3	0.5 +/-0.7	2.4 +/-1.1	2.4 +/-1.0	3.3+/-0.5	0.2+/-0.4	0.9+/-1.0
4	0.05 +/-0.2	2.2 +/-1.3	1.5 +/-1.3	2.3+/-1.6	0.0	0.1+/-0.4
5	0.05 +/-0.2	1.0 +/-1.5	0.8 +/-0.4	0.4+/-0.5	0.0	0.0
6	0.0	0.7 +/-1.4	0.4 +/-1.3	0.2+/-0.6	0.0	0.0
7	0.0	1.5 +/-1.3	0.4 +/-1.3	1.2+/-1.3	0.0	0.0
8	0.0	1.3 +/-1.3	0.5 +/-1.1	0.7+/-1.0	0.0	0.05+/-0.2
9	0.0	1.3 +/-1.9	1.6 +/-1.6	1.9+/-2.0	0.05+/-0.2	0.2+/-0.5
10	0.0	2.4 +/-2.0	0.8 +/-1.4	2.1+/-1.9	0.0	0.0
Total	3.0+/-2.4	18.1[3]+/-8.7	14.8+/-7.9	18.1[4]+/-7.4	2.3+/-2.1	3.7[4]+/-2.8

[1]Total score < 8 ; [2]total score >=8 ; [3]p=0.0001 vs 1st administration ; [4]NS vs 1st administration

FIGURE 1 : DISTRIBUTION OF AUDIT SCORES AT FIRST AND SECOND ADMINISTRATIONS.



positive if AUDIT score ≥8; negative if score <8

REFERENCES

Babor TF, de la Fuente JR, Saunders J, Grant M (1992). The Alcohol Use Disorders Identification Test: Guidelines for use in primary health care. WHO Publication No. 92.4; World Health Organization, Geneva, Switzerland.

Batel P., Tkoub E.M., Pessione F., Lancrenon S. (1999). Essai d'évaluation des attitudes de déni en clinique alcoologique. Alcoologie 21 : 35-42.

Bradley KA, McDonell MB, Bush K, Kivlahan DR, Diehr P, Fihn SD. (1998) The AUDIT alcohol consumption questions : reliability, validity and responsiveness to change in older male primary care patients. Alcohol Clin Exp Res 22 : 1842-9.

Brooke D., Taylor C., Gunn J., Maden A. (1998). Substance misusers remanded to prison - a treatment opportunity? Addiction 93 : 1851-6.

Conigrave KM, Hall WD, Saunders JB. (1995). The AUDIT questionnaire: choosing a cut-off score. Alcohol Use Disorder Identification Test. Addiction 90 : 1349-56.

Daeppen J.-B., Yersin B., Landry U., Pécoud A., Decrey H. (2000). Reliability and validity of the Alcohol Use Disorders Identification Test (AUDIT) imbedded within a general health risk screening questionnaire: results of a survey in 332 primary care patients Alcohol Clin Exp Res 24: 659-65

De Beaurepaire C., Hiriart V. (1997). Conduites addictives & population incarcérée. Etude descriptive chez les patients de l'hôpital pénitentiaire de Fresnes. Dépendances 9 : 14-24.

Gaussot L. (2000). A propos du déni de l'alcoolique. Regard sociologique. Alcoologie et Addictologie 22 : 113-9

Karno M, Granholm E, Lin A (2000). Factor structure of the Alcohol Use Disorders Identification Test (AUDIT) in a mental health clinic sample. J Stud Alcohol 61: 751-8

Lennings CJ (1999). Evaluation of the Leeds Dependence Questionnaire. J Child Adolesc Subst Abuse 8: 73-87

Maisto SA, Conigliaro J, McNeil M, Kraemer K, Kelley ME (2000) An empirical investigation of the factor structure of the AUDIT. Psychol Assess 12: 346-353

Mason, D.; Birmingham, L.; Grubin, D. (1997). Substance use in remand prisoners : A consecutive case study. Br Med J 315 : 18-21.

Mayfield D, McLeod G, Hall P. (1974). The CAGE questionnaire: validation of a new alcoholism screening instrument. Am J Psychiatry 131 : 1121-3

Medina-Mora E, Carreno S, de la Fuente JR (1998). Experience with the Alcohol Use Disorders Identification Test (AUDIT) in Mexico, in Recent Developments in Alcoholism,

Volume 14: The Consequences of Alcoholism. Galanter M ed. pp 383-396. Plenum Press, New York.

Michaud P, Pessione F, Lavault J, Rohmer G, Rueff B. (2000) Screening of alcohol-related problems in French detainees using the CAGE questionnaire. Alcologia 12 : 19-25.

Michaud P., Orsel C., Sarda A. (2002). Alcool, violence et justice. Alcoologie et Addictologie 24 : 179-95.

O´Hare T, Sherrer MV (1999). Validating the Alcohol Use Disorder Identification Test with college first-offenders. J Subst Abuse Treat 17: 113-9.

Peters RH, Greenbaum PE, Steinberg ML, Carter CR, Ortiz MM, Fry BC, Valle SK (2000) Effectiveness of screening instruments in detecting substance use disorders among prisoners. J Subst Abuse Treat 18 : 349–358.

Reinert DF, Allen JP. (2002). The Alcohol Use Disorders Identification Test (AUDIT): A Review of Recent Research. Alcohol Clin Exp Res 26 : 272-9.

Saunders JB, Lee NK. (2000). Hazardous alcohol use: its delineation as a subthreshold disorder, and approaches to its diagnosis and management. Compr Psychiatry 41(2 Suppl 1) : 95-103.

Selin KH. (2003).Test-Retest Reliability of the Alcohol Use Disorder Identification Test in a General Population Sample. Alcoholism Clin Exp Res 2003; 27 : 1428-35