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THRESHOLD AND OPTIMAL CUT-POINTS FOR ALCOHOL USE DISORDERS AMONG PATIENTS IN THE EMERGENCY DEPARTMENT

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Abstract

Background—Current research suggests that DSM-IV alcohol abuse and dependence form an unidimensional continuum in emergency department (ED) patients in four countries: Argentina, Mexico, Poland and the United States. In this continuum of alcohol use disorder (AUD), there are no clear-cut distinctions between the criteria for dependence and abuse in the severity dimension based on prior results from Item Response Theory (IRT) analysis. Nevertheless, it is desirable to find a threshold for identifying cases for clinical practice and cut-points of clinical utility in this continuum to distinguish between patients more or less affected by an AUD, using a scale of symptoms count.

Methods—Data from 5193 patients in 7 ED sites in the same 4 countries (3191 current drinkers) were used to study the structure, threshold and possible cut-points for the diagnoses of AUD.

Results—The proposed changes in the DSM-V, dropping the abuse item “legal problems” and adding an item on “craving”, did not impact the IRT performance and unidimensionality of alcohol use disorder in this sample. With a total set of 11 items (deleting “legal problems” and adding “craving” to the current set of DSM criteria) an endorsement of 2 or more criteria can be used as the threshold to define those with an AUD in clinical practice. Furthermore, we can distinguish at least 2 levels of clinical severity, 2–3 criteria (moderate) and 4 or more criteria (severe).

Conclusions—A dimensional approach to AUD using the proposed new set of criteria for the DSM-V can be used to propose a threshold and levels of severity. More research in different

populations and countries is needed to further substantiate a threshold and cut-points that could be used in new formulations of substance use disorders.

Keywords

Alcohol use disorder; DSM-IV; ethnicity; dimensional; IRT analysis

INTRODUCTION

Current research from general population samples in Australia (Proudfoot et al., 2006), the United States (Krueger et al., 2004; Saha et al., 2006), samples of adolescents from clinical (Martin et al., 2006) and adjudicated, clinical and community samples (Gelhorn et al., 2008), and samples of treatment-seeking addicts (Langenbucher et al., 2004) and psychiatric outpatients (Ray et al., 2008) all suggest that in the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (American Psychiatric Association, 1994; American Psychiatric Association, 2000), (DSM-IV) alcohol abuse and dependence form a unidimensional continuum. Recently, exploratory factor analyses also showed that among emergency departments (ED) patients in four countries, Argentina, Mexico, Poland and the United States, alcohol use disorders (AUD) can be described as a single unidimensional continuum without any clear-cut distinction between the criteria for dependence and abuse in all sites. Among these ED patients, the criteria for dependence and abuse are intermingled in the severity dimension based on Item Response Theory (IRT) results and the current DSM-IV criteria tap people in the middle–upper end of the alcohol use disorder continuum (Borges et al., 2010).

The Substance-Related Disorders Work Group has been meeting to inform the Fifth Revision (DSM-V) of the diagnostic criteria for alcohol use disorders for the Diagnostic and Statistical Manual of Mental Disorders (DSM; American Psychiatric Association, 2000). Some of the proposed changes by the DSM-V substance related workgroup include the deletion of one abuse item from the DSM-IV that has been subject to a great deal of scrutiny, legal problems (Keyes and Hasin, 2008; Saha et al., 2006; Babor and Caetano, 2008), and the addition of an item from the International Classification of Disease (ICD-10) (World Health Organization, 1990a; World Health Organization, 1990b) for alcohol dependence, alcohol craving (a strong desire or sense of compulsion to take the substance), which has also been subject of great interest for the DSM-V modifications (Cherpitel et al., 2010; Keyes et al., 2010). In the four-country ED dataset (Borges et al., 2010) legal problems was extremely rare, with a prevalence of only 4.1% among drinkers, the least reported DSM-IV criterion. On the other hand, craving was reported by a quarter to almost half of current drinkers with AUD, depending on the country (Cherpitel et al., 2010). To the best of our knowledge, no prior study has reported the IRT structure of this set of eleven criteria proposed for this definition of AUD to be used in the DSM-V; however, it would be expected that the unidimensionality of AUD reported for the DSM-IV criteria would still hold. This is an empirical question that is the subject of the first part of this paper.

Assuming this continuum of AUD still exists in the new criteria definition, the next step is to suggest a threshold for the diagnosis of alcohol use disorder (AUD), and to analyze cut points that can be used to identify levels of severity in this continuum, preferably using procedures that keep simplicity and applicability in mind so they can be used by clinicians (Helzer et al., 2007). In this paper, data from ED patients in this same four-country study are used to examine thresholds and critical cut points, utilizing the series of eleven criteria for alcohol abuse and dependence proposed in the current revision for the DSM-V as stipulated in the provisional criteria (American Psychiatric Association, 2010).

MATERIALS AND METHODS

Samples and data sets

The data set used for this analysis included 5195 ED patients from seven sites in four countries: Santa Clara, California [US, 1995–1996 ($n = 1429$, one hospital)]; Pachuca, Mexico [during 1996–1997 ($n = 1417$, three hospitals)]; Warsaw and Sosnowiec, Poland [2002–2003 ($n = 1317$, two hospitals)] and Mar del Plata, Argentina [2001 ($n = 978$, one hospital)]. Details about these samples have been published elsewhere (Borges et al., 2010). The response rates were: Santa Clara 73%, Pachuca 93%, Warsaw 67%, Sosnowiec 65% and Mar del Plata 92%. Both injured and non-injured patients were interviewed regarding alcohol dependence and abuse/harmful drinking, socio-demographic characteristics (age, gender, education) as well as purpose of their ED visit (injury versus medical condition).

Data were collected using a similar methodology and instrumentation developed by Cherpitel (Cherpitel, 1989). All studies used a probability sampling design in which each shift was represented equally for each day of the week during the period in which data were collected in each ED facility. Across all studies, patient samples of those 18 and older were selected from ED admission forms, which included walk-in patients as well as those arriving by ambulance, and reflected consecutive arrival at the ED. The particular sampling frame in a study depended upon the number of patients admitted to the ED facilities included in each study. Once selected for the study, and as soon as possible after ED admission, patients were approached with an informed consent to participate, and were then breathalyzed and administered a questionnaire of about 25 minutes in length by trained interviewers while the patient was in the waiting room or treatment area and/or following treatment. Patients who were too severely injured or ill to be interviewed in the ED and who were subsequently hospitalized were approached to be interviewed later, after their condition had stabilized.

Measures

Diagnostic criteria for alcohol dependence and abuse—All analyses here are performed for the 12-month diagnosis of alcohol use disorders among current (12-month) drinkers in the ED. An adaptation of the Alcohol Section of the Composite International Diagnostic Interview (CIDI) core (World Health Organization, 1990a) was used to obtain a diagnosis of DSM-IV alcohol dependence and alcohol abuse. The CIDI diagnostic interview was developed as a joint project by the World Health Organization and the US Alcohol, Drug Abuse and Mental Health Administration; and has been tested in several countries. The alcohol section of the CIDI has been found to perform well (kappa of 0.81) (Cottler et al., 1991), is easy to use and acceptable to subjects in almost all cultures (Wittchen et al., 1991). The DSM-IV criteria for last 12-month dependence consist of three positive responses across seven domains (tolerance, withdrawal, drinking more than intended, unsuccessful efforts to control, giving up pleasures or interests to drink, spending a great deal of time in drinking activities, continued alcohol use despite physical/psychological problems). A 12-month craving criterion, part of the ICD-10 dependence criteria, was also included: “Feel such strong desire to drink that couldn’t resist it or think of anything else”. Also obtained was a diagnosis for DSM-IV alcohol abuse based on any one of four items: role performance, hazardous use (injury), legal problems, and social-interpersonal problems. This paper uses the proposed series of eleven criteria for alcohol abuse and dependence in the current revision for the DSM-V as stipulated in the provisional criteria recently made public (American Psychiatric Association, 2010). In this vein, all of the seven dependence items listed above are retained, with the addition of the “craving” criterion, and deletion of one abuse item (legal problem) and adds a criterion for “craving.”

Validators

Patients were asked an abbreviated version of the graduated frequency series of questions (Greenfield, 2000) which obtain data, for the last year, on the frequency of drinking any alcoholic beverage; the usual number of alcohol drinks per drinking day during the last year (mean alcohol drink), and the frequency, separately, of consuming 12 or more (12+) drinks at least monthly for men and at least once during the last year for women and drunkenness at least monthly for men and at least once during the last year for women, as validators of AUD.

Patients were also asked the four question making up the RAPS4 (Cherpitel, 2000): 1) “have you had feelings of guilt or remorse after drinking? (Guilt/Remorse),” 2) “has a friend or family member ever told you about things you said or did while you were drinking that you could not remember? (Blackout),” 3) “have you failed to do what was normally expected of you because of drinking? (Failed expected),” 4) “do you sometimes take a drink in the morning when you first get up? (Morning drink)”; all in the last 12 months. The RAPS4 was used because endorsement of any of these four items has been correlated with alcohol dependence (Cherpitel, 2000), and tolerance and heavy drinking in a 13-country ED study (Cherpitel et al., 2005). Additionally, patients were asked, “have you needed to go to an emergency department for an injury or accident? (Not counting this time) (ER use)”, that even when non specific for prior treatment of alcohol use disorders correlates well with heavy drinking (Cherpitel et al., 2006).

Data analysis

Analysis was conducted on current drinkers (those reporting drinking in the last 12 months). Standard factor analytical methods was used for exploring the dimensionality of AUD, excluding legal problems and including a craving item (Borges et al., 2010; Cherpitel et al., 2010; Saha et al., 2007). IRT models were then fitted for the new set of items using Mplus (Muthén & Muthén, 2008).

In the absence of clear discontinuities in AUD (Hasin and Beseler, 2009) and lack of follow-up data from general population and clinical samples of individuals with different levels of clinical severity of AUD, a strategy for defining the threshold and possible cut points is simply using symptom counts (Dawson et al., 2010) and the prior classification as a standard (Schmulewitz et al., 2010). Given the low prevalence of the item to be deleted (legal problems) and the high correlation between the item to be added (craving) with the other items already existent from the DSM-IV (Keyes et al., 2010), a threshold that maximizes the concordance between the old and the new classification was sought. The kappa statistic was used to evaluate the concordance between a given threshold using the new set of criteria for the DSM-V and the 11 items from the current DSM-IV abuse and dependence criteria.

Finally, after a threshold is identified, external validators (Hasin and Beseler, 2009) can be used to define levels of severity for clinical and research purposes. In this context, we would expect that those having high levels of severity in the new classification to have higher associations with these external validators. Moreover, we can use these validators to study those with a diagnosis under DSM-IV that may fail to be included as cases in the DSM-V, as well as those new cases under DSM-V that lacked a diagnoses under the current DSM-IV. Odds ratios from logistic regression (Hosmer and Lemeshow, 2000) were used to that end to analyze the impact of validators on possible cut-points to define a moderate and severe form of AUD for the new set of criteria. Given the similarities in findings to prior reports using a country by country analysis (Borges et al., 2010; Cherpitel et al., 2010) analyses reported here is for the total sample of ED patients, ignoring country of origin.

RESULTS

Of the sample of 5195 ED patients, 52% were males and 45% were attending the ED due to an injury. A total of 3191 were current drinkers and among those the 12-month prevalence was 9.1% for DSM-IV abuse and 11.4% for DSM-IV dependence. The combined 12-month prevalence of alcohol abuse and dependence was 20.6 among current drinkers.

Table 1 shows exploratory factor analyses and IRT results for the proposed 11 criteria in the DSM-V compared to the 11 criteria used to identify alcohol abuse (4 criteria) and alcohol dependence (7 criteria) in the DSM-IV, the so-called base-model. In the DSM-IV criteria there is a strong support for a one dimension of alcohol use disorder with a large eigenvalue for the first factor, a small eigenvalue for the second factor, and a large correlation between the two factors. All these properties were also found in the proposed criteria for the DSM-V, with a single factor being a better representation of AUD and no losses in the CFI and TLI indexes when “legal problems” was deleted and “craving” was added. Visual inspection using item information curves that compared the performance of DSM-AUD when legal criterion was deleted suggested only a small loss of information, and a small increment of information when craving was added (data not showed).

The IRT results for the proposed DSM-V in Table 1 show that craving has values for discrimination and severity that are in the middle of the continuum.

When one or more criteria is used as the threshold for an AUD according to the proposed DSM-V, the prevalence would be 33.3%, or 1.6 times the current definition of any abuse or dependence in the DSM-IV (20.6%) (Table 2). The best concordance between the 12-month prevalence in DSM-IV and the proposed criteria for DSM-V is given by the threshold of two or more (prevalence of 20.9%, with a Kappa of 0.80), and concordance diminishes as the threshold exceeds three or more criteria. The deletion of legal problem had a marginal impact on the total prevalence, as did the inclusion of a craving item (data not shown). If a threshold of two or more is adopted with the proposed DSM-V one-third of DSM-IV abuse patients would not be captured using 2 or more as a threshold, while 6.3% of those NOT diagnosed with the current dependence criteria would be identified. This latter group would be either patients with one abuse and one dependence criteria, or patients with only two dependence criteria, the so-called “dependence orphans” according to DSM-IV criteria.

Table 3 shows results of a logistic regression analyses that uses several “validators” as dependent variables for the proposed DSM-V at different cut-points. For example, those having a DSM-IV diagnosis of alcohol abuse or dependence were 22.9 times more likely to report a blackout, while those with only alcohol dependence were 34.1 times more likely to report this. Among those with the proposed DSM-V criteria at a cut point of one, the odds ratio is only 0.4 times (OR=8.2 Vs OR=22.9) the OR for the DSM-IV criteria, but at a cut point of three, is almost similar (1.2 times) to the DSM-IV; after 4 criteria the OR is 33.9, or 1.5 times higher than the DSM-IV abuse or dependence criteria, and not far from the OR associated with DSM-IV dependence (34.1). That is, two or three criteria have an OR similar to the combined current DSM-IV criteria of abuse or dependence, while four or more criteria have ORs that are similar to the more severe cases of the current DSM-IV definition of dependence. Other validators show similar results. Higher number of alcohol drinks per drinking day during the last year (mean alcohol drink) was reported as the patients showed increasing number of DSM-V criteria.

Table 4 shows the cross-classification of the 3191 current drinkers under the current DSM-IV definition of alcohol abuse and alcohol dependence by the proposed classification in the DSM-V 11 criteria with two levels of severity. The Kappa coefficient was 0.75, suggesting a good agreement between both systems. Among those with a DSM-IV abuse but no DSM-V

diagnosis (101 patients), 39% reported neglect roles, social-interpersonal problems (28%), hazardous use (28%) and legal problems (5%). Among those with a DSM-V moderate but no DSM-IV diagnosis (114 patients), the most frequent criteria were withdrawal (45%), drinking more than intended (44%), continued alcohol use despite physical/psychological problems (37%) and tolerance (25%).

In the new classification two groups are of special concern: those with an abuse diagnoses in DSM-IV that would not have an AUD under DSM-V, and those without a diagnoses in DSM-IV that would be new cases of AUD under DSM-V. Analyses suggested that the 101 DSM-IV abuse cases not classified as AUD cases in the proposed DSM-V drink less (mean number of alcohol drinks during last year of 4.8) and had lower levels of prevalence for all validators when compared to the DSM-IV abuse cases that would be classified as moderate (mean number of drinks of 5.8) or severe (mean number of drinks of 8.0) AUD cases in the new classification. The only exception was the validator of prior ED use (38%, 33% and 43%, respectively) for which no difference was found in prevalence across the three groups (non-significant at $p=0.190$) (Table 5). The lower prevalence of validators suggest that we may, indeed, exclude these patients as cases in the new classification. On the other hand, the 114 new cases under DSM-V had higher prevalences of all validators (except ED use) when compared to the 101 DSM-IV abuse cases that were not classified as AUD cases in the proposed DSM-V. They also had a much larger prevalence of all validators when compared to the 2431 patients that were negative according to both diagnostic schemes. This suggests that the inclusion of these patients as new cases in the DSM-V is justified based on these validators.

DISCUSSION

The new set of criteria as stipulated in the provisional DSM-V recently made public (American Psychiatric Association, 2010), when applied to the cross-country sample of ED patients reported here, show a good one-factor structure and unidimensionality. Results presented here suggest that with a total set of 11 items (deleting “legal problems” from the current DSM-IV set and adding “craving” to the prior set of DSM-IV), an endorsement of two or more criteria can be used as a cut-point to define those with an AUD, as it produced the best concordance with the current prevalence of DSM-IV abuse and dependence. Furthermore, at least two levels of clinical severity can be distinguished, 2–3 criteria (moderate) and 4 and more criteria (severe) based on its relationship with external validators.

Results here of the dimensionality of AUD in this sample of ED patients, using the proposed 11 criteria are similar to that reported by several authors (Borges et al., 2010; Cherpitel et al., 2010; Gelhorn et al., 2008; Keyes et al., 2010; Krueger et al., 2004; Langenbucher et al., 2004; Martin et al., 2006; Ray et al., 2008; Saha et al., 2006). In this sample, the deletion of the legal problem criterion as suggested by others analyzing US samples (Keyes and Hasin, 2008; Saha et al., 2006) has resulted in a somewhat better performance of the IRT parameters with just a small loss of the total information, and a negligible impact on the prevalence of AUD, as also reported in a sample from Israel (Schmulewitz et al., 2010). The cross-national similarities of these findings do suggest that the addition of craving and the deletion of legal problems from the current diagnostic system, as proposed by the revision of the DSM-IV currently under way (American Psychiatric Association, 2010), may result in an overall better performance of criteria. This is the first report of an exploratory factor analyses and IRT analyses on the proposed set of 11 criteria that may form the basis of the new DSM-V. Findings reported here are overall reassuring that the new criteria set, if eventually applied, will continue to demonstrate unidimensional properties, while at the

same time, will have a broader and more comparable conceptual framework with the ICD-10 classification.

In other research (Dawson et al., 2010) a simple symptom count was used to evaluate a threshold for AUD. No clear discontinuity in the dimensionality was found, as also suggested in other samples (Grove et al., 2010; Hasin and Beseler, 2009; Schmulowitz et al., 2010). We found here that a possible threshold of 2 or more of 11 criteria could be set for the proposed DSM-V. This is lower than the threshold of three or more proposed for an Israeli sample (Schmulowitz et al., 2010), but which used a different set of final criteria than those used here. Additionally, the sample of ED patients analyzed here may have a larger baseline number of symptoms compared to samples of the general population. Clearly this is a key point in the formulation of DSM-V (Martin et al., 2008) that will require more work in terms of replication with different group of patients and samples from the general population, and from different countries, if possible.

A final point is whether a continuous scale of the symptom count can be used to find levels of severity for AUD. In the ER sample here, four or more was a cut-point that distinguished those more affected in terms of external validators, which included a consumption variable, other symptoms of alcohol involvement and, most important, use of ED health care. No other reports are available to contrast these cut-points. The fact that the Kappa statistics only changed from 0.80 in the dichotomous analyses to 0.75 in the severity analyses is reassuring. The exclusion of about 101 individuals classified as DSM-IV abuse cases and the inclusion of 114 new cases seems to be justified according to all the validators but one. Again, replication of these cut-points, probably using a variety of statistical models (Hasin and Beseler, 2009) and different populations are sorely needed, before a clear recommendation can be made. Innovative methods, such as hybrid models (Muthen, 2006; Kuo et al., 2008), could also be used in the context of the analyses performed here, but the inclusion of such analysis and interpretative work would expand the current study beyond the scope of our more limited goals. It should be noted that the use of validators for identifying levels of severity in the symptom count scale do not address the issue of possible sub-types of AUD, as discussed by others (Moss et al., 2007; Moss et al., 2008). Since the proposed scale combine criteria for abuse and dependence, and suggest a new threshold (2 of 11 criteria), this task will become even more complex and is beyond the scope of the present work.

Limitations

This study is limited to an analysis of data from patients with non-fatal injuries and medical emergencies who attended specific EDs. Although the study design provides a representative sample of patients from each ED facility, patients may not be representative of other ED facilities in the region or country. Additionally, reported here are data from only four countries, and while each demonstrated distinctly different drinking patterns, the inclusion of EDs from other countries may have influenced study findings. An additional limitation is that cultural factors may have influenced willingness to report the presence of specific criteria as well as the interpretation of survey items related to these criteria, such as the hazardous use criterion illustrated by drinking and driving behaviors (Keyes et al., 2009). Finally, results reported here are limited to the scope of the EFA, IRT analyses and the general prevalence that we found. Most importantly, our approach to define a threshold and cut-points was based on the comparison of the proposed DSM-V prevalence with the current DSM-IV prevalence, considered here as a standard. This approach is limited by the fact that DSM-IV, itself, is subject to the same errors in its ability to detect cases of alcohol use disorders as is the proposed DSM-V. A more comprehensive approach to determine whether or not these items should be included in future classifications, and whether thresholds and cut-points are of practical use, must also take into account the criteria as it relates to pathophysiology, treatment for AUD or 12-step attendance, or outcomes of AUD

in multiple settings and with a diversity of patients. These, of course, are beyond the scope of the analysis reported here.

Conclusion

Despite these limitations, the findings from this large and diverse cross-cultural sample of clinically relevant patients, with diverse and sometimes deleterious patterns of alcohol consumption, are relevant to the current DSM-V discussion. In this sample of ED patients, the proposed new set of 11 criteria showed good one-factor structure and unidimensionality, an endorsement of two or more criteria can be used as a cut-point to define those with an AUD and at least two levels of clinical severity can be distinguished, 2–3 criteria (moderate) and 4 or more criteria (severe). More research in different populations and in different countries is needed to further substantiate a threshold and cut-points that could be used in new formulations of substance use disorders.

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Table 1

Exploratory factor analyses and item response theory (IRT) analyses of alcohol use disorder in the Emergency Room Collaborative Alcohol Analysis Project (ERCAAP)

GEOMIN Rotation - MPLUS Default	Base Model (DSM-IV 11 criteria)		Model without legal and added craving (proposed DSM-V 11 criteria)		Model without legal and adding craving (IRT for DSM-V 11 criteria)	
	One factor	Two factors	One factor	Two factors	Discrimination (S.E.)	Severity (S.E.)
All Ers						
Tolerance (D)	0.860	0.880	0.864	0.927	1.792	1.568
Withdrawal (D)	0.844	0.733	0.847	0.813	1.620	1.227
Larger/Longer (D)	0.892	0.951	0.894	0.968	2.064	1.106
Quit/Control (D)	0.896	0.850	0.897	0.852	2.027	1.453
Time spent (D)	0.947	0.957	0.951	0.998	2.986	1.384
Activities given up (D)	0.942	0.943	0.947	0.950	2.839	1.605
Phys/psych problems (D)	0.886	0.657	0.888	0.750	1.952	1.177
Neglect roles (A)	0.819	0.443	0.810	0.636	1.480	1.467
Hazardous use (A)	0.782	0.558	0.781	0.629	1.345	1.856
Social/Interpersonal problems (A)	0.895	0.227	0.875	0.005	1.812	1.426
Legal problems (A)	0.894	0.001	-	-	-	-
Craving	-	-	0.906	0.876	2.125	1.541
Factor correlation	-	0.854	-	0.834		
Eigenvalue	8.659	9.112	8.706	9.113		
Comparative Fit Index (CFI)	0.998	1.000	0.999	1.000		
Tucker Lewis Index (TLI)	0.997	1.000	0.999	1.000		
Root mean squared error of approximation RMSEA	0.030	0.011	0.016	0.010		

Table 2

Prevalence and concordance of alcohol use disorders (AUD) at different thresholds in the Emergency Room Collaborative Alcohol Analysis Project (ERCAAP)

	Total Sample	Current Drinkers	Kappa w/AUD (current drinkers) *	% of those with DSM-IV Abuse classified with new diagnosis	% of those with DSM-IV Dep. classified with new diagnosis	% of those NON-DSM-IV Dep. classified with new diagnosis
Proposed DSM-V 11 criteria, without legal, add craving						
1 or more	20.5	33.3	0.68	99.5%	100.0%	14.5%
2 or more	12.8	20.9	0.80	65.6%	100.0%	6.3%
3 or more	9.3	15.1	0.79	36.6%	100.0%	2.4%
4 or more	7.3	11.8	0.68	14.1%	92.1%	0.9%
5 or more	5.8	9.5	0.58	2.1%	81.1%	0.1%

* Kappa is for the concordance between any alcohol abuse or dependence in the DSM-IV and the threshold using the proposed 11 criteria for DSM-V

Table 3

Validating new AUD with different cut points for severity in the Emergency Room Collaborative Alcohol Analysis Project (ERCAAP)—ORs from Logistic Regressions, controlling for gender and age

	Any 12+	Drunk≥1/month	Mean alcohol drink	Guilt/Remorse	Morning drink	Fail Expected	ER use	Blackout	RATIO NEW/OLD*
DSM-IV AUD (1+ Abuse or 3+ dependence)	18.8	20.4		27.7	30.8	44.2	1.9	22.9	
DSM-IV dependence (3+)	36.8	31.9		40.3	41.4	63.6	2.3	34.1	
Proposed DSM-V 11 criteria, without legal, add craving									
exactly 1	7.2	7.2	Overall F ^{**} =56.0 (df=4) p<0.001	9.3	8.6	7.4	1.2	8.2	0.4
exactly 2	10.6	15.7	5.5 (p=0.391)	17.5	22.1	16.5	1	12.8	0.6
exactly 3	12.5	13.2	5.9 (p=0.140)	22.6	14.8	44.1	1.4	27.6	1.2
exactly 4	27.4	33.4	7.1 (p=0.096)	54.4	51.5	56.9	2.3	33.9	1.5
exactly 5 or more	83.8	87.7	9.0 (p<0.001)	139.5	173.3	247.9	2.8	105.7	4.6

* Ratio calculated for blackouts, new definition Vs old definition any abuse or dependence

** Overall F test computed for 5 cut-points, and pair-wise test between a specific cut-point and the immediate next cutpoint, e.g. exact 1 vs exact 2 (p=0.391).

Cross tabulation of DSM-IV alcohol abuse and dependence by proposed DSM-V by levels of severity In the Emergency Room Collaborative Alcohol Analysis Project (ERCAAP)

Table 4

		Proposed DSM-V 11 criteria		
		no diagnoses	moderate (2–3)	severe (4+)
Current	no diagnoses	2431 (76.0%)	114 (3.5%)	0
DSM-IV	abuse	101 (3.1%)	146 (4.7%)	42 (1.3%)
Kappa	dependence	0	29 (0.9%)	328 (10.5%)
	0.75			

Table 5
Prevalence of validators among patients in the Emergency Room Collaborative Alcohol Analysis Project (ERCAAP)

VALIDATORS	DSM-IV None DSM-V None (N=2431)		DSM-IV ABUSE NO DSM-V (N=101)		DSM-IV ABUSE DSM-V moderate (N=146)		DSM-IV ABUSE DSM-V severe (N=42)		DSM-IV NONE DSM-V moderate (N=114)	
Any 12+	10.7%		36.4%		40.7%		65.2%		40.6%	
Drunk>1/month	2.5%		6.4%		10.8%		27.5%		17.3%	
Mean alcohol drink	3.8		4.8		5.8		8.0		5.9	
Guilt/Remorse	6.9%		21.4%		41.3%		58.9%		26.4%	
Morning drink	2.8%		4.5%		17.1%		41.8%		15.3%	
Fail Expected	2.6%		6.1%		22.2%		39.0%		12.0%	
ER use	26.9%		37.7%		32.6%		48.4%		33.1%	
Blackout	0.4%		8.1%		24.4%		42.8%		16.7%	