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CONCURRENT VALIDITY OF THE ALCOHOL USE DISORDERS IDENTIFICATION TEST (AUDIT)

PRASANTHA DE SILVA[1]*, PUSHPA JAYAWARDANA,[2] and A. PATHMESWARAN[3]

[1]Medical Officer, Management Development and Planning Unit, Ministry Of Health Care and Nutrition, Sri Lanka
[2]Senior Lecturer, Department of Community Medicine, Faculty of Medicine, University of Kelaniya, Sri Lanka
[3]Head of the Department, Senior Lecturer, Department of Community Medicine, Faculty of Medicine, University of Kelaniya, Sri Lanka

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Abstract — Aims: To determine cut-offs for the Alcohol Use Disorders Identification Test (AUDIT) 10-item questionnaire, differentiating hazardous drinking (HZD) and alcohol use disorders (AUD) from low risk drinking (LRD), and AUD from HZD and LRD among married men in a Sri Lankan sample. **Methods:** Using 62 low risk drinkers and 88 each from hazardous drinkers and AUD, the AUDIT instrument was compared with adapted and translated versions of a beverage-specific, quantity-frequency questionnaire, and the alcohol use module of the Composite International Diagnostic Interview (CIDI), and two receiver operating characteristic (ROC) curves were plotted. **Results:** The area under the ROC curves to differentiate HZD + AUD from LRD and AUD from HZD + LRD were 0.96 (95% CI: 0.94–0.99) and 0.97 (95% CI: 0.95–0.99) respectively. The cut-off values of 7 and 16 were observed to have the best trade-offs between sensitivity, specificity, the ratio of positive likelihood to negative likelihood ratios, and positive predictive values. **Conclusion:** The AUDIT could be used to screen for LRD, HZD, and AUD among Sinhalese married men in Sri Lanka.

INTRODUCTION

The Alcohol Use Disorders Identification Test (AUDIT) questionnaire is unique among alcohol related screening instruments in that it is designed to measure a range of risk levels, from low risk drinking (LRD) to hazardous drinking (HZD), and alcohol use disorders (AUD).

The term LRD is used to denote alcohol consumption in very small amounts, which some people identify as either 'safe drinking' (Piccinelli *et al*., 1997) or 'social drinking' (Ashworth and Gerada, 1997). HZD is a pattern of alcohol consumption that increases the risk of alcohol related problems without meeting the minimum criteria of AUD (Babor *et al*., 2001).

AUD includes two diagnostic criteria; harmful use (according to the ICD-10 classification system) or alcohol abuse (according to the DSM IV classification system), and the alcohol dependence syndrome.

Although HZD is operationally defined using quantity-frequency criteria with cut-off levels varying from 20 to 60 g per occasion, or as the daily average amount in the studies published to date.

However, the international guide for monitoring alcohol related harm published by the WHO (2002) recommends 60 g as the cut-off level for males, which is based on the scientific evidence available.

The AUDIT total score of 8 is recommended as the overall cut-off level, which can differentiate HZD and AUD from LRD. Although recommendations have been made, with the use of three cut-off levels, 8–15, 16–19 and 20 or more, it is possible to identify medium, high level of alcohol problems, and probable dependence, respectively, however, there is still insufficient research to establish a precise cut-off level to differentiate AUD from HZD and LRD in different population groups (Babor *et al*., 2001). Presence of separate cut-off levels may be useful for the purpose of evaluating different intervention approaches.

The aim of this study was to determine the cut-off levels to differentiate HZD + AUD from LRD, and AUD from HZD + LRD.

SUBJECTS AND METHODS

A quota sampling technique was adopted to recruit 62 research participants of LRD, and 88 each of HZD and AUD. All were married males with a mean age of 41 years (SD = 13). The proportions of participants with LRD, HZD, and AUD were 49.6, 32.7 and 17.7%, respectively, in the community sample, and 6.9, 40.4 and 52.7%, respectively, in the hospital sample. The community participants were recruited through a household survey carried out in four randomly selected Grama Niladhari Divisions (lowest administrative division), while the hospital participants comprised both indoor and outdoor patients.

The adapted and translated Beverage Specific Quantity Frequency Questionnaire WHO (2002) and the Alcohol Use Module of the Composite International Diagnostic Interview (CIDI) WHO (1987), were used as the comparison standards for HZD and AUD, respectively. While the consumption of 60 g or more of ethanol during a period of 12 months prior to the date of interview was classified as HZD, presence of a computer generated diagnosis of either harmful use or alcohol dependence syndrome from the CIDI 2.1 auto version was classified as AUD.

The concurrent validity of AUDIT was determined by plotting two receiver operating characteristic (ROC) curves. Categorization based on the Beverage Specific Graduated Quantity Frequency questionnaire was used to examine the ability of the AUDIT to differentiate HZD + AUD from LRD, and to determine the best cut-off value.

*Author to whom correspondence should be addressed at: Medical Officer, Management Development and Planning Unit, Ministry Of Health Care and Nutrition, Sri Lanka; E-mail: prasantha.silva@gmail.com

Table 1. Relevant ROC curve values to differentiate hazardous drinking + alcohol use disorders

Cut-off values	Sensitivity	Specificity	Positive likelihood ratios (LR+)	Negative likelihood ratios (LR−)	Ratio LR+/LR−	Positive predictive values (%)
≥6	0.955	0.790	4.5	0.057	79	96
≥7	0.943	0.903	9.7	0.063	154	97
≥8	0.920	0.919	11.3	0.087	130	97
≥9	0.892	0.919	11	0.117	94	97
≥10	0.875	0.919	10.8	0.136	79	98

Table 2. Relevant ROC curve values to differentiate alcohol use disorders from hazardous drinking + low risk drinking

Cut-off values	Sensitivity	Specificity	Positive likelihood ratios	Negative likelihood ratios	Ratio LR+/LR−	Positive predictive values (%)
≥14	1.000	0.700	3.3	0	3.3	68.5
≥15	0.989	0.733	3.7	1.5	2.5	68.0
≥16	0.966	0.747	3.8	0.046	82.6	72.0
≥17	0.943	0.787	4.4	0.072	61.1	77.5
≥18	0.943	0.813	5.0	0.070	71.4	83.6
≥19	0.932	0.867	7.0	0.078	89.7	86
≥20	0.920	0.887	8.1	0.09	90.0	86.5

For the second ROC curve, categorization was based on the modified and translated CIDI which was used to examine the ability of AUDIT to differentiate AUD from HZD + LRD, and to determine the best cut-off value.

RESULTS

The area under the ROC curve to differentiate HZD + AUD from LRD was 0.96 (95% CI: 0.94–0.99). A cut-off value of 7 was observed to have the best trade-off between sensitivity, specificity and the ratio of positive to negative likelihood ratios, and positive predictive value (Table 1).

The area under the ROC curve to differentiate AUD from HZD + LRD was 0.97 (95% CI: 0.95–0.99). The cut-off value of 16 was observed to have the best trade-off between sensitivity, specificity and the ratio of positive to negative likelihood (Table 2).

DISCUSSION

The most important finding of this study was that the AUDIT was able to differentiate satisfactorily AUD from HZD + LRD at the cut-off value of 16 or more. Although Babor *et al*. (2001) earlier suggested that the score of 16 and above was appropriate for continued monitoring and evaluation for dependence, this could probably be the first study which provides objective evidence on this issue.

The differentiation of AUD from HZD + LRD has definite practical usefulness. First and foremost, since the AUDIT could be used by any trained layperson, it is an extremely useful instrument in settings with scarce trained health personnel. Second, it allows examining differential roles of the risk factors among risk groups with varying degrees of severity. Third, it enables to carry out risk group-specific interventions.

This study has several limitations too. Since the interview version of the instrument was used, the social desirability bias cannot be ruled out. The interviewer-administered method was preferred to a self-administered one since the translated and adapted Sinhalese version demand use of an interviewer with the adapted beverage-specific conversion chart and visual aides. Next, the study findings cannot be generalized to all age groups of men since the study sample consisted only of married men between the ages of 19–70 years. The reason for confining the study to married men was due to the fact that the AUD was apparently higher among married men than was the case in western countries.

It could be concluded that the AUDIT could be used to differentiate HZD from LRD, and AUD from HZD + LRD among Sinhalese married men in Sri Lanka. However, further studies are needed to evaluate its predictive validity, and to assess the extent of the social desirability bias.

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