

Portuguese Validated Versions of the Alcohol Use Disorders Identification Test: A Systematic Review Protocol



Versões Validadas em Português do Alcohol Use Disorders Identification Test: Protocolo de Revisão Sistemática da Literatura

Diogo Phalempin CARDOSO¹, Daniela OLIVEIRA², Beatriz ANTUNES³, Rosa SARAIVA^{4,5}, Kathryn ANGUS⁶, Eugenia GALLARDO^{5,7,8}, Frederico ROSÁRIO^{1,5,9}
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ABSTRACT

Introduction: Alcohol consumption ranks among the top ten risk factors contributing to the global disease burden. Several international organizations recommend the use of the Alcohol Use Disorders Identification Test to screen for at-risk drinkers. However, a fully validated Portuguese version of this test is lacking. The aim of this study is to systematically review validated versions of the Alcohol Use Disorders Identification Test in the Portuguese language, the documented problems and solutions in its application and proposed cut-offs to identify at-risk drinkers.

Material and Methods: A systematic search will be performed in Ovid MEDLINE, CINAHL, PsycINFO, IndexRMP, LILACS, African Journals Online and SciELO databases, along with grey literature searches to identify validation studies of the AUDIT in Portuguese. Two authors will independently extract data and assess the studies' methodological quality, using QUADAS-2 and CASP checklists.

Discussion: This review will compare different validation studies of the Alcohol Use Disorders Identification Test in Portuguese-speaking countries, reporting, where possible, the psychometric properties, performance characteristics, suggested cut-offs and any documented limitations and suggestions. The results of this review could be used to propose an update of the alcohol screening and brief intervention guidelines in Portugal. The results could also prove useful to support the implementation of alcohol screening delivery by healthcare providers in Portugal and other official Portuguese-speaking countries.

Conclusion: This review will provide important information on the validity of the Alcohol Use Disorders Identification Test as a screening tool for at-risk drinking in Portugal and other official Portuguese speaking countries.

Keywords: Alcoholism/epidemiology; Alcohol-Induced Disorders; Alcohol-Related Disorders; Mass Screening

RESUMO

Introdução: O consumo de álcool é um importante fator de risco modificável. Várias organizações internacionais recomendam a utilização do *Alcohol Use Disorders Identification Test* para identificar consumidores excessivos de álcool. No entanto, não parece haver uma versão totalmente validada deste questionário em português. O objetivo deste estudo é identificar versões validadas do *Alcohol Use Disorders Identification Test* em português, problemas e soluções na sua aplicação, e pontos de corte para identificar consumidores excessivos.

Material e Métodos: Será realizada uma revisão sistemática dos estudos de validação do AUDIT em português existentes nas bases de dados Ovid MEDLINE, CINAHL, PsycINFO, IndexRMP, LILACS, African Journals Online e SciELO, bem como na literatura cinzenta. Dois autores extrairão informação, e avaliarão a qualidade dos estudos selecionados, de forma independente, utilizando as grelhas QUADAS-2 e CASP.

Discussão: Esta revisão irá comparar estudos de validação do *Alcohol Use Disorders Identification Test* em português e reportar, se descrito, propriedades psicométricas, características de desempenho, pontos de corte sugeridos, limitações e sugestões documentadas. Os resultados poderão ser importantes para propor uma revisão da norma de orientação clínica portuguesa sobre o rastreio e intervenções breves nos consumidores de álcool. Por outro lado, os resultados poderão ser utilizados para apoiar a implementação do rastreio do consumo de álcool na prática clínica em Portugal e noutros países de língua oficial portuguesa.

Conclusão: Esta revisão irá fornecer informação relevante sobre a validade do *Alcohol Use Disorders Identification Test* como método de rastreio do consumo excessivo de álcool em Portugal e noutros países de língua oficial portuguesa.

Palavras-chave: Alcoolismo/epidemiologia; Perturbações Induzidas por Álcool; Perturbações Relacionadas ao Uso de Álcool; Rastreio

1. Unidade de Saúde Familiar Tondela. Agrupamento de Centros de Saúde Dão Lafões. Viseu. Portugal.
2. Unidade de Saúde Familiar Grão Vasco. Agrupamento de Centros de Saúde Dão Lafões. Viseu. Portugal.
3. Unidade de Saúde Familiar Vouzela. Agrupamento de Centros de Saúde Dão Lafões. Viseu. Portugal.
4. Serviço de Epidemiologia e Saúde Pública. Centro Hospitalar Universitário Cova da Beira. Covilhã. Portugal.
5. Comissão Executiva para a Área de Missão Problemas Ligados ao Alcool. Centro Académico e Clínico das Beiras. Covilhã. Portugal.
6. Institute for Social Marketing & Health. Faculty of Health Sciences & Sport. University of Stirling. Stirling. Scotland. United Kingdom.
7. Centro de Investigação em Ciências da Saúde. Faculdade de Ciências da Saúde. Universidade da Beira Interior. Covilhã. Portugal.
8. Laboratório de Fármaco-Toxicologia. Universidade da Beira Interior. Covilhã. Portugal.
9. Equipa de Projeto em Investigação. Agrupamento de Centros de Saúde Dão Lafões. Viseu. Portugal.

✉ Autor correspondente: Frederico Rosário. fredmbr@gmail.com

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INTRODUCTION

Alcohol use is one of the top ten risk factors for disease and disability. It is estimated that 5.3% of all deaths and 5.1% of all disability-adjusted life years (DALYs) are attributable to alcohol use, surpassing other leading causes of death, such as HIV/AIDS, tuberculosis and diabetes.¹ The effect on premature mortality is even higher, accounting for 7.2% of all deaths, with a disproportionate effect on younger populations – 13.5% of all deaths between 20 - 39 years of age¹ – with considerable variability between countries. Portugal ranks 13th in the World Health Organization's (WHO) list of countries with the highest total alcohol per capita consumption.¹ According to the Portuguese Directorate-General of Health, alcohol was the third leading cause of premature death in 2018 and was responsible for 6.4% of all premature deaths and 8.7% of all DALYs.² Efforts must be undertaken to lower the overall population level of alcohol consumption.

Screening and brief interventions for alcohol at the level of primary health care are effective and cost-effective in reducing alcohol-related harm.³⁻⁷ The WHO⁸ and several national and international guidelines⁹⁻¹¹ recommend the use of the Alcohol Use Disorders Identification Test (AUDIT) to identify at-risk drinkers. The AUDIT was developed in the 1980s as a means to address an unmet need: to have a simple instrument that could be used by healthcare workers in both developing and developed countries to identify hazardous and harmful drinkers.¹² Since its publication, the AUDIT has been extensively researched concerning its psychometric properties and performance characteristics and became one of the most widely used tools for assessing risky drinking.^{13,14} Research shows that both the AUDIT-C (its abridged version, containing only the first three questions)¹⁵ and the full 10-item questionnaire can be successfully used to screen for alcohol use disorders.¹⁶

Notwithstanding its usefulness as a screening tool, researchers worldwide have pointed out some limitations to the AUDIT's validity and accuracy. Among these limitations are concerns regarding the validity of the individual items across different cultural and demographic groups and different languages, the possible differences regarding concepts such as 'standard drink', 'typical day' or 'heavy drinking session' in these groups, and the optimal cut-off for determining at-risk drinking.¹³ Several studies focusing on the validity and performance characteristics of the AUDIT for different populations have been published, showing acceptable validity and reliability across a wide range of settings.¹⁶⁻²¹ To our knowledge, only one such study was conducted in Portugal, in which Roque da Cunha used translation and back-translation to obtain a valid Portuguese language version of the AUDIT questionnaire.²³ Based on this study, the AUDIT was included in the Portuguese national guidelines for 'Early Detection and Brief Intervention in Alcohol Consumption' as the recommended tool to screening for at-risk drinkers.¹⁷ However, there are a number of limitations to the current version of the Portuguese AUDIT, such as being based on a small, non-representative sample of under 65 year-old subjects, or not having determined the best cut-off points.¹⁸ This could have several implications in practice. For instance, not determining the best cut-off points may increase the number of low-risk drinkers classified as high-risk drinkers (false positives); conversely, and potentially more problematic, it may also increase the number of high-risk drinkers that are classified as low-risk drinkers (false negatives) and to whom counselling is not, therefore, offered. A number of systematic reviews focused on the AUDIT's validity have been published,¹⁹⁻²³ but none included Portuguese data that could answer the above-mentioned limitations.²⁴ A systematic review focused on Portuguese versions of the AUDIT is, therefore, needed to strengthen the recommendation to use the AUDIT as a screening tool for at-risk drinkers in Portugal, which could contribute to its more widespread use in clinical practice. The present review is part of the MARADONA (Making Advances to Recognize Alcohol use and alcohol-related disorders by Developing Old and New Assessment tools) research project, which aims to improve the way by which people with excessive alcohol consumption and alcohol-related disorders are identified by developing new, or validating existing, screening tools.

Objectives

This study aims to systematically review Portuguese versions of the AUDIT questionnaire, in order to identify validated versions of the test, the documented problems and solutions in its application and proposed cut-offs to identify at-risk drinkers. The specific research questions we will address are as follows:

1. What Portuguese versions of the AUDIT exist globally and what are the differences between them?
2. What are the documented problems and solutions in the application of the AUDIT in Portuguese-speaking countries?
3. What validation studies of Portuguese versions of the AUDIT exist?
4. What are the proposed cut-offs of Portuguese versions of the AUDIT for screening for at-risk drinkers?

MATERIAL AND METHODS

The review methods outlined here are in accordance with the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols (PRISMA-P) statement [see Appendix file 1 for completed PRISMA-P checklist (Appendix 1: https://www.actamedicaportuguesa.com/revista/index.php/amp/article/view/15765/Appendix_01.pdf)].^{25,26} The study protocol was pre-registered on PROSPERO (registration number CRD42021223631).

Inclusion and exclusion criteria

Study design: Quantitative and qualitative studies reporting primary data will be eligible for inclusion. Editorials, opinion pieces and letters to the editor will be excluded.

Participants: No limitations regarding the participants will be applied.

Outcomes: The outcomes of interest in this review are Portuguese versions of the AUDIT that use a translation-back translation methodology with or without assessments of its psychometric properties (e.g. content and construct validity, internal consistency) and/or performance characteristics (e.g. accuracy, sensitivity, specificity) at the optimal cut-off (please see Tables 1 and 2 for definitions of the psychometric properties and performance characteristics to be retrieved). Where possible, we will also retrieve information on the problems faced, and solutions found, during its application. Studies will be excluded if: the AUDIT is used or referred to, but the study's purpose was not its validation; if it uses a methodology other than translation-back translation; and if the study was conducted in countries other than those mentioned below.

Setting: No limitations regarding the type of setting shall be applied provided the study was performed in countries with Portuguese as an official spoken language (Angola, Brazil, Cape Verde, East Timor, Equatorial Guinea, Guinea-Bissau, Mozambique, Portugal and São Tomé and Príncipe). Studies conducted in other countries will be excluded.

Language: We will include articles published in Spanish, English and Portuguese. Potentially relevant studies published in other languages will be excluded from the analysis but their titles will be listed in a table.

Information sources and search strategy

The following electronic databases will be searched, from 1987 (the year when the first WHO report on the AUDIT was made available)¹² until December 2020, for studies meeting the inclusion criteria stated above: Ovid MEDLINE, CINAHL, PsycINFO, ÍndexRMP, LILACS, African Journals Online and SciELO. We will also perform a grey literature search through the following: 1) grey literature databases, by searching the OpenDOAR database (global Directory of Open Access Repositories) for repositories of countries relevant for this study (at the time of writing, this database included 206 repositories of relevance to the review); 2) Google Scholar; and 3) consultation with experts, which includes authors of relevant conference abstracts. When available, the abstract of all eligible articles will be used to perform a search using the Journal/Author Name Estimator (JANE) search engine to access similar, possibly relevant, articles. To ensure literature saturation, we will scan the reference lists of relevant systematic reviews and meta-analyses identified through the search for potentially eligible papers. The search strategy will be developed together with two health information specialists (RS and KA), based on a list of relevant keywords identified from an exploratory search of the literature and by exploring the Medical Subject Headings (MeSH terms) of the US National Library of Medicine. The final search will be performed by KA and RS after adapting the Ovid MEDLINE strategy to the syntax of the other databases [see Appendix 2 for the complete Ovid MEDLINE search strategy (Appendix 2: https://www.actamedicaportuguesa.com/revista/index.php/amp/article/view/157658/Appendix_02.pdf)].

Data management and study selection

The results of the literature search will be uploaded to the EndNote X9 software. One reviewer (DPC) will scan the titles and/or abstracts to eliminate duplicate results. Afterwards, two reviewers will independently screen titles and abstracts of identified references: half of the studies by DPC and DO, the other half by DPC and BA. Studies will be excluded if they: 1) Do not have a title; 2) A full-text copy cannot be obtained; 3) Are not published in one of the following languages: English, Spanish or Portuguese; 4) Are not aimed at validating the AUDIT questionnaire; 5) Were conducted in countries where Portuguese is not an official language. Disagreements will be resolved through consensus. If consensus cannot be reached, a third reviewer (FR) will be contacted. Full-text copies of all studies meeting inclusion criteria and of those which eligibility is unclear after assessment of title and abstract will be sought and the selection process repeated. If any of the full-text articles cannot be retrieved, a list detailing the unobtainable articles will be provided. Reasons for excluding papers from the analysis will be recorded in a table describing the characteristics of the studies excluded. Reviewers will not be blinded for any aspect of the studies identified and selected.

Data extraction

Two reviewers, using the same above-mentioned distribution methodology, will independently extract data to a data extraction form specifically designed for this review and later entered into a Microsoft Excel spreadsheet. Disagreements will be resolved as described above. Data to be extracted will include: first author; year of publication; title; language of publication; country of origin; primary objective of the study; characteristics of the study sample (such as age and sex distribution); definition of standard drink; definition of a single occasion of drinking; examples of standard drink and results of validation (which may include any or all of the following: (i) qualitative analysis on the perception of the AUDIT questions (interviews with experts and/or patients); (ii) reference to a predetermined protocol of systematic translation and back-translation of the tool; (iii) pilot study on the feasibility of the AUDIT; (iv) assessment of the dimensions of the AUDIT; (v) psychometric properties (reliability, validity and responsiveness); and (vi) performance characteristics (optimal cut-off point, accuracy,

sensitivity, specificity, ROC curve analysis), separating results by sex, age group and any other variables of interest as reported in the retrieved studies.

Assessment of methodological quality

A critical appraisal of the validity of the included studies will be conducted to assist our synthesis of the evidence. Two reviewers will independently assess the methodological quality of the studies selected for this systematic review, using the same above-mentioned distribution methodology. Disagreements will be resolved as described above. The quality of quantitative studies will be appraised with the Quality Assessment of Diagnostic Accuracy Studies (QUADAS-2) tool.²⁷ Qualitative studies will be assessed with the Critical Appraisal Skills Programme (CASP) qualitative research checklist.²⁸

Data synthesis

This review will be reported in accordance with the PRISMA-DTA guidelines which will include a flow diagram (Fig. 1) and a table detailing the studies selected. The review will start by reporting the results of the literature searched. PRISMA flowcharts and tables will be presented with reasons for inclusion and exclusion as well as the methodology of studies included. The results of the review will be reported in a table and a narrative synthesis of the findings will be provided. Due to the expected heterogeneity of the populations in the included studies, we do not intend to perform a meta-analysis of the collected data.

DISCUSSION

This review will aggregate validated versions of the AUDIT in Portuguese, highlighting obtained cut-off values for different levels of consumption, problems associated with its application and any relevant questions added to its base format. The results of this review could be used for a scientifically-sound and thorough update of the Portuguese guidelines on alcohol screening and brief intervention, which in turn could prove useful to support the implementation of alcohol screening in daily practice in Portugal. Several barriers have been identified regarding the implementation of alcohol screening tools, which could be directly related to the AUDIT (such as unfamiliarity with the questionnaire or lack of trust in its reliability) or indirectly related to it (such as believing patients will not follow the advice to cut down or fear of damaging the therapeutic relationship with the patient).^{29,30} While it is not within the scope of this review to identify the underlying causes of the resistance of healthcare professionals to using the AUDIT, we believe that the results from this review could contribute to addressing these barriers.

Possible limitations to this review include the exclusion of articles published in languages other than English, Portuguese and Spanish, and of validation studies in countries in which the official spoken languages do not include Portuguese. Notwithstanding, we do not anticipate that many studies, if any, will be excluded due to the above-mentioned reasons: firstly, the vast majority of Portuguese-led research is published in these three languages; and secondly, it is unlikely that validation studies on the AUDIT have been conducted in countries in which Portuguese is not the official language. Finally, another limitation is that, since there is no established methodology for researching the grey literature, it is possible that some relevant unpublished papers will not be captured with our search strategy.

CONCLUSION

To our knowledge, this will be the first study to review Portuguese versions of the AUDIT questionnaire, which could be used to support clinicians and decision-makers in their efforts to implement the AUDIT as a screening tool for at-risk drinking in Portugal and other official Portuguese speaking countries.

AUTHORS CONTRIBUTION

DPC: Conception and design of the paper and the research strategy. Draft of the article.

DO, BA: Critical review of the article.

RS, KA: Conception of the research strategy, critical review of the article.

EG: Critical review of the article.

FR: Conception of the study and the research strategy. Protocol design. Draft of the article.

COMPETING INTERESTS

None.

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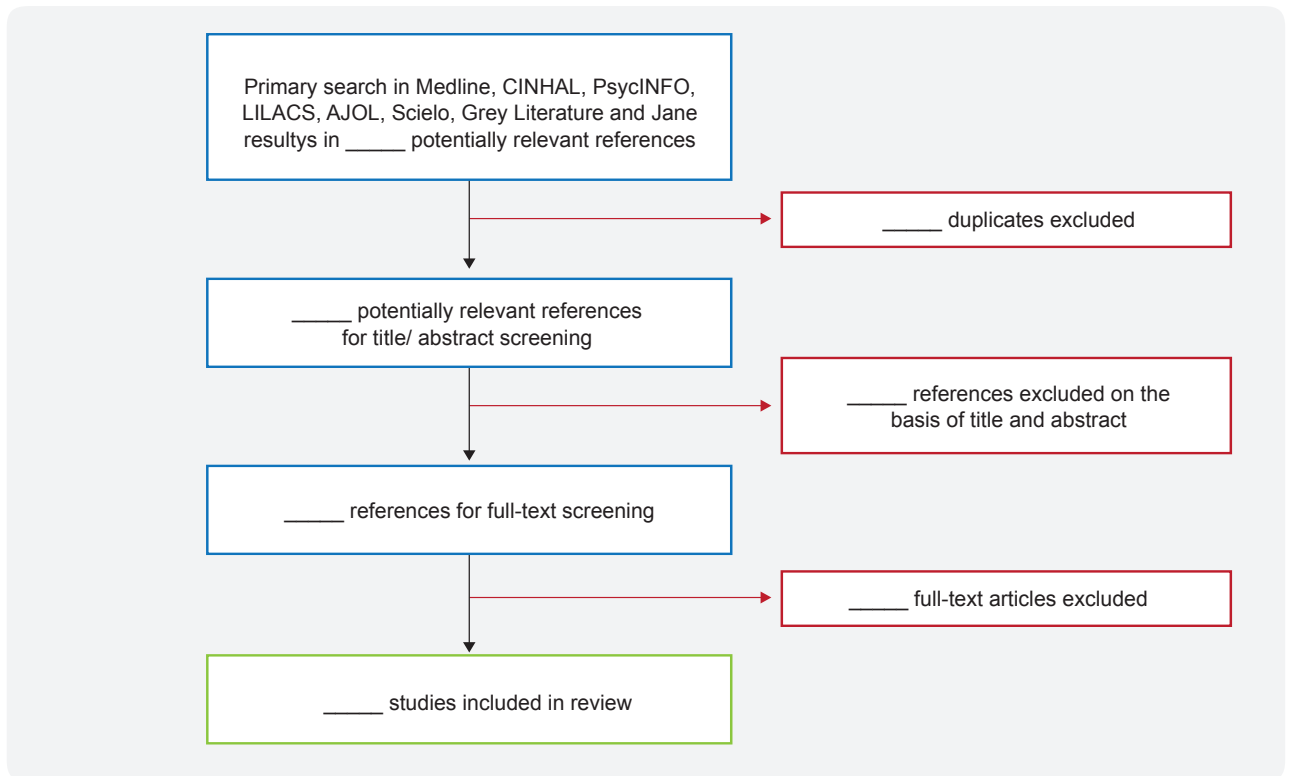


Figure 1 – Flow diagram of screening process

Table 1 – Definition of the psychometric properties to be extracted

Psychometric Domain	Psychometric property	Definition
Reliability: the degree to which the measurement is free from measurement error	Parallel forms reliability	Obtaining the same results by administering different versions of an assessment tool to the same group of individuals.
	Internal consistency	The degree of interrelatedness among the items.
	Inter-rater reliability	The degree of consistency between different people conducting the same test.
	Test-retest reliability	The consistency of the same test applied over time.
Validity: the degree to which an instrument measures the constructs it intends to measure	Content validity	The degree to which the content of an instrument is an adequate reflection of the construct to be measured.
	Construct validity	The degree to which the test measures the particular construct that it is designed to measure.
	Face validity	The degree to which an instrument indeed appears to be an adequate reflection of the construct to be measured.
	Criterion validity	The degree to which the scores of an instrument are an adequate reflection of a "gold standard".

Table 2 – Definition of the performance characteristics to be extracted

Performance Domain	Performance measures	Definition
Accuracy: the ability of a test to detect a condition when it is present and detect the absence of a condition when it is absent	Sensitivity	The frequency with which a test correctly generates a positive result in a situation where the condition being tested exists.
	Specificity	The frequency with which a test correctly generates a negative result in a situation where the condition being tested does not exist.
	Positive predictive value	The chance that a condition being tested for actually exists when tested positive for.
	Negative predictive value	The chance that a condition being tested for does not actually exist when tested negative for.
	Positive likelihood <i>ratio</i>	The probability of a person who has the condition testing positive (sensitivity) divided by the probability of a person who does not have the condition testing positive (1 – specificity).
	Negative likelihood <i>ratio</i>	The probability of a person who has the condition testing negative (1 – sensitivity) divided by the probability of a person who does not have the condition testing negative (specificity).
	Area under the ROC curve	A performance measurement for the classification problems at various threshold settings. ROC is a probability curve and AUC represents the degree or measure of separability.
	Diagnostic <i>odds ratio</i>	The ratio of the odds of positivity in subjects with the condition relative to the odds in subjects without the condition.

Appendix 1 – PRISMA-P Checklist

This checklist has been adapted for use with protocol submissions to *Systematic Reviews* from Table 3 in Moher D et al: Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic Reviews* 2015 4:1

Section/topic	#	Checklist item	Information reported		Page number(s)
			Yes	No	
ADMINISTRATIVE INFORMATION					
Title					
Identification	1a	Identify the report as a protocol of a systematic review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1
Update	1b	If the protocol is for an update of a previous systematic review, identify as such	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8
Registration	2	If registered, provide the name of the registry (e.g., PROSPERO) and registration number in the Abstract	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8
Authors					
Contact	3a	Provide name, institutional affiliation, and e-mail address of all protocol authors; provide physical mailing address of corresponding author	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1-2
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10-12
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8
Support					
Sources	5a	Indicate sources of financial or other support for the review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2
Sponsor	5b	Provide name for the review funder and/or sponsor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NA
Role of sponsor/funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NA
INTRODUCTION					
Rationale	6	Describe the rationale for the review in the context of what is already known	<input checked="" type="checkbox"/>	<input type="checkbox"/>	6.8
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8

Section/topic	#	Checklist item	Information reported		Page number(s)
			Yes	No	
METHODS					
Eligibility criteria	8	Specify the study characteristics (e.g., PICO, study design, setting, time frame) and report characteristics (e.g., years considered, language, publication status) to be used as criteria for eligibility for the review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	9-10
Information sources	9	Describe all intended information sources (e.g., electronic databases, contact with study authors, trial registers, or other grey literature sources) with planned dates of coverage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10-11
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(Annexed)
STUDY RECORDS					
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11
Selection process	11b	State the process that will be used for selecting studies (e.g., two independent reviewers) through each phase of the review (i.e., screening, eligibility, and inclusion in meta-analysis)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11
Data collection process	11c	Describe planned method of extracting data from reports (e.g., piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11-12
Data items	12	List and define all variables for which data will be sought (e.g., PICO items, funding sources), any pre-planned data assumptions and simplifications	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12
DATA					
Synthesis	15a	Describe criteria under which study data will be quantitatively synthesized	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data, and methods of combining data from studies, including any planned exploration of consistency (e.g., I^2 , Kendall's tau)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13
	15c	Describe any proposed additional analyses (e.g., sensitivity or subgroup analyses, meta-regression)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	<input checked="" type="checkbox"/>	<input type="checkbox"/>	13

Section/topic	#	Checklist item	Information reported		Page number(s)
			Yes	No	
Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (e.g., publication bias across studies, selective reporting within studies)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	12-13
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (e.g., GRADE)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Appendix 2 - OVID Medline Search Strategy

1. alcohol*.af,bt,in,gi,jn,mp.
2. alcool*.af,bt,in,gi,jn,oa,ot,mp.
3. exp Alcohol drinking/
4. Alcohol Drinking in College/
5. exp Alcohol-Induced Disorders/
6. exp Alcohol-Related Disorders/
7. Alcoholic Intoxication/
8. Alcoholism/
9. intoxicat*.mp.
10. Binge Drinking/
11. exp Drinking Behavior/
12. Underage Drinking/
13. bing*.mp.
14. drink*.mp.
15. drunk*.mp.
16. 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15
17. "Alcohol* Us* Disorder* Identif* Test*".mp.
18. (AUDIT or AUDITs).mp.
19. assess*.mp.
20. instrument#.mp.
21. measur.mp.
22. question*.mp.
23. screen*.mp.
24. self-rat*.mp.
25. self-report*.mp.
26. survey*.mp.
27. tool#.mp.
28. exp Surveys/ and Questionnaires/
29. Self Report/
30. Health Surveys/
31. 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30
32. accura*.mp.
33. (cut-off* or cutoff* or cut off*).mp.
34. diagnostic test*.mp.
35. predictive.mp.
36. psychometr*.mp.
37. receiver* operat* characteristic*.mp.
38. reliab*.mp.
39. ROC analys*.mp.
40. ROC curve*.mp.
41. sensitiv*.mp.
42. specific*.mp.
43. valid*.mp.
44. validation study.pt.
45. Validation Studies as Topic/
46. exp Reproducibility of Results/

47. exp Sensitivity/ and Specificity/
48. Predictive Value of Tests/
49. ROC Curve/
50. 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49
51. exp Portugal/
52. exp Angola/
53. exp Brazil/
54. exp Cabo Verde/
55. exp Equatorial Guinea/
56. exp Guinea-Bissau/
57. exp Mozambique/
58. exp Sao Tome/ and Principe/
59. exp Timor-Leste/
60. (lusof* or lusoph*).af,in,gi,mp.
61. Angola*.af,cp,in,gi,mp.
62. Bra#il*.af,cp,in,gi,mp.
63. Cape Verde*.af,cp,in,gi,mp.
64. Cabo Verde*.af,cp,in,gi,mp.
65. (East* adj1 Timor*).af,cp,in,gi,mp.
66. Timor-Lest*.af,cp,in,gi,mp.
67. E#uatorial Guine*.af,cp,in,gi,mp.
68. E#uatoguine*.af,cp,in,gi,mp.
69. (Guine? adj1 Bissau*).af,cp,in,gi,mp.
70. Mo#ambique*.af,cp,in,gi,mp.
71. Mo#ambic*.af,cp,in,gi,mp.
72. Portug*.af,cp,in,gi,mp.
73. Sao Tome*.af,cp,in,gi,mp.
74. 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67 or 68 or 69 or 70 or 71 or 72 or 73
75. 16 and 31 and 50 and 74