Health Information and Quality Authority

An tÚdarás Um Fhaisnéis agus Cáilíocht Sláinte

Protocol for a systematic review on the association between alcohol consumption and mental health outcomes

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About the Health Information and Quality Authority

The Health Information and Quality Authority (HIQA) is an independent statutory body established to promote safety and quality in the provision of health and social care services for the benefit of the health and welfare of the public.

Reporting to the Minister for Health and engaging with relevant government Ministers and departments, HIQA has responsibility for the following:

- **Setting standards for health and social care services** — Developing person-centred standards and guidance, based on evidence and international best practice, for health and social care services in Ireland.
- **Regulating social care services** — The Chief Inspector of Social Services within HIQA is responsible for registering and inspecting residential services for older people and people with a disability, and children's special care units.
- **Regulating health services** — Regulating medical exposure to ionising radiation.
- **Monitoring services** — Monitoring the safety and quality of permanent international protection accommodation service centres, health services and children's social services against the national standards. Where necessary, HIQA investigates serious concerns about the health and welfare of people who use health services and children's social services.
- **Health technology assessment** — Evaluating the clinical and cost effectiveness of health programmes, policies, medicines, medical equipment, diagnostic and surgical techniques, health promotion and protection activities, and providing advice to enable the best use of resources and the best outcomes for people who use our health service.
- **Health information** — Advising on the efficient and secure collection and sharing of health information, setting standards, evaluating information resources and publishing information on the delivery and performance of Ireland's health and social care services.
- **National Care Experience Programme** — Carrying out national service-user experience surveys across a range of health and social care services, with the Department of Health and the HSE.

Visit www.hiqa.ie for more information.

1. Purpose and aim

Alcohol consumption is a leading risk factor for mortality and disability worldwide, with higher levels of alcohol consumption associated with a greater burden of disease.[1] Reducing and preventing harmful consumption levels of alcohol is a global public health priority. The World Health Organization's (WHO) *Global Strategy on the Harmful Use of Alcohol*, published in 2010, aimed to promote and support local, regional, and global actions in this regard.[2] The WHO's *Global Alcohol Action Plan 2022–2030* has placed a renewed focus on the effective implementation of the strategy, while recognising the associated challenges and complexity.[3] An objective of the action plan is to raise awareness among decision-makers and the general public of the risks and harms associated with alcohol consumption.

Low-risk alcohol guidelines aim to improve awareness of the risks associated with alcohol use and to support individuals to make informed decisions on their alcohol consumption. When developing low-risk alcohol guidelines, the impact of alcohol consumption on both physical and mental health should be considered. The purpose of this protocol is to outline the process by which the Health Information and Quality Authority (HIQA) will conduct a systematic review of the evidence regarding the association between various levels and or patterns of alcohol consumption and mental health outcomes. This systematic review will focus on the association between alcohol consumption and the development of mental health outcomes within an individual. Although it is acknowlegeded that alcohol misuse may effect the health and well-being of those around the person who consumes alcohol,[4, 5] this will not be examined in this review.

The information contained in the review will support the update of Ireland's current low-risk alcohol guidelines,[6] being led by the Department of Health.

2. Process outline

Six distinct steps in the process have been identified and will be completed. These are listed below and described in more detail in Sections 2.1 to 2.6:

1. Defining the scope
2. Searching for and selecting relevant sources
3. Extracting relevant information
4. Risk of bias assessment
5. Certainty of evidence assessment
6. Summarising and presenting findings.

2.1. Defining the scope

During initial topic scoping, it was identified that in recent years, several countries have updated their low-risk alcohol guidelines, to reflect emerging evidence regarding the consumption of alcohol and the associated impact on health, including Canada (2023),[7] Australia (2020),[8] France (2017),[9] and the UK (2016).[10] To support these low-risk alcohol guideline updates a number of these countries have conducted a systematic review of the evidence regarding the association between alcohol consumption and mental health outcomes. These include:

- Adelaide Health Technology Assessment's (AHTA) *Systematic literature review on the association between alcohol consumption and mental health disorders,*[11] which was developed to support the National Health and Medical Research Council's 2020 update of the *Australian Guidelines to Reduce Health Risks from Drinking Alcohol,*[12] and
- Cochrane Canada's *Effect of Alcohol Consumption on the Development of Depression, Anxiety and Suicidal Ideation: Update of a Systematic Review,*[13] which was developed to support the Canadian Centre on Substance Use and Addictions 2023 update of *Canada's Low-Risk Alcohol Drinking Guidelines.*[7, 14] The Cochrane Canada review was a rapid update of the AHTA review.

During scoping, both the AHTA systematic review and the Cochrane Canada rapid update were reviewed.[11, 13] Following this, both reviews were formally quality appraised using A MeaSurement Tool to Assess systematic Reviews (Version 2) (AMSTAR 2).[15] While a number of limitations were identified, both reviews met key criteria, including describing the studies in adequate detail, assessing the studies for risk of bias (RoB), and discussing heterogeneity in the results (see Appendix 1). Both reviews were also deemed to be relevant to the topic of interest, comprehensive in nature, and synthesised appropriately. As Cochrane Canada's rapid update contained the most recent research (with a last search date of December 2021) a targeted update of this systematic review is the adopted approach for the current review.

2.2. Searching for and selecting sources

This systematic review update will adhere to Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines, where appropriate.[16] The methods used within this review update will reflect the methodology used by Cochrane Canada.[13] Any notable deviations are outlined in Appendix 2.

This systematic review update will address the following research question:

- *What is the association between varying levels and or patterns of alcohol consumption and specific mental health outcomes in the general population and in specific subgroups of interest?*

As in the Cochrane Canada update, the specific mental health outcomes which will be focused on within this systematic review update are the development and or exacerbation of depression, anxiety, and or suicidal ideation (see). While the 2018 AHTA systematic review included alcohol-induced psychosis as an outcome of interest, studies which reported the risk of alcohol-induced psychosis resulting from alcohol consumption and met their inclusion criteria, were not identified.[11] Cochrane Canada therefore only included depression, anxiety and suicidal ideation as outcomes of interest.[13]

A systematic literature search will be conducted in MEDLINE and Embase via Ovid, CINAHL and PsycINFO via EBSCO and the Cochrane Library. Detailed preliminary search strategies for each database are presented in Appendix 3. Registries and grey literature sources (adapted from those in the AHTA systematic review[11]) will also be searched, as outlined in Appendix 4. Reference lists from all included studies will be searched for potentially relevant citations, and forward citation searching of included studies will be undertaken.

The population, exposure, comparator, outcomes and study designs (PECOS) for this review, as well as the language and publication time frame of articles eligible for inclusion are outlined in Table 1.

Table 1. Population, exposure, comparators, outcomes, study designs (PECOS) language and time frame of articles eligible for inclusion.

Population	The general population. If relevant evidence is identified, the following subgroups will be examined: ▪ males and females ▪ older adults (people aged 65 years or older) ▪ younger adults (people aged 18 to 25 years) ▪ children and adolescents (people aged under 18 years) ▪ people with existing mental and or physical health conditions ▪ people with a family history of alcohol abuse, alcohol dependence or alcohol use disorder.[a] *Excluded:*

	▪ studies where the population consists of only those with a specific clinical health condition only (for example, cancer) ▪ studies where the population consists of only people with alcohol use disorder.
Exposure	Varying quantities and or frequencies of alcohol consumption[b] in a single episode and or over time. *Excluded:* ▪ information on levels of alcohol consumption not distinctly reported, for example, studies that describe substance use rather than alcohol use, or studies relating to alcohol use disorder without details of alcohol consumption ▪ focused on a specific type of alcoholic beverage only, for example beer or wine only.
Comparator	Reference quantities and or frequencies of alcohol consumption (including no alcohol consumption).[c]
Outcomes	Development and or exacerbation of depression, anxiety, and or suicidal ideation measured by any of the following (where appropriate): ▪ self-reported physician diagnosis ▪ clinical diagnosis ▪ diagnosis using diagnostic interviews (for example, instruments using Diagnostic and Statistical Manual of Mental Illnesses (DSM) or International Classification of Diseases (ICD) criteria) ▪ established cut offs or continuous scores of screening instruments. Additionally, for suicidal ideation dichotomous measurement will also be allowed. Examples of outcomes included are those outlined in the: ▪ DSM-5:(17) ○ depressive disorders ○ anxiety disorders ○ suicidal behaviour. ▪ ICD-10:(18) ○ depressive episode ○ recurrent depressive disorder

	○ other anxiety disorders ○ other symptoms and signs involving emotional state (see Appendix 5). *Excluded:* studies that assess the influence of mental health on alcohol consumption (that is, an association in the opposite direction to the direction of interest in this review).
Study design	*Longitudinal studies* For all outcomes, it can be either: a) alcohol levels measured at baseline, and anxiety or depression or suicidal ideation measured at least six months later, or b) anxiety or depression or suicidal ideation measured at baseline but alcohol levels in the past history measured. *Cross-sectional studies* For suicidal ideation, in addition to a) or b) include: c) suicidal ideation and levels of alcohol reported for the same period of time. *Excluded:* ▪ cross-sectional studies for outcomes related to depression and or anxiety ▪ studies that do not assess the exposure and outcome within the same individual, for example, studies that assess alcohol consumption in an individual and mental health outcomes in other individuals, such as family members.
Language	Any language.
Time frame	Articles published between 18 December 2021 (final date of the Cochrane Canada search) and 19 August 2025.

[a] While the Cochrane Canada rapid update included this subgroup as 'people with a family history of alcohol dependence' according to *DSM-4*[19] terminology, the *DSM-5*[17] merged alcohol dependence with alcohol abuse into a single disorder called alcohol use disorder with mild, moderate, and severe sub-classifications.

[b] While the Cochrance Canada rapid update also included "patterns of intake", this term is not included in the current review. This is to align alcohol consumption explored within the current review, with terminology used in further evidence synthesis which is supporting the update of Ireland's current low-risk alcohol guidelines.[20]

[C] Reference groups may consist of occasional drinkers, lifetime abstainers or current abstainers, which may include former drinkers.

All potentially eligible documents identified will be exported to Covidence. For both title and abstract, and full-text screening, all documents will be screened against the eligibility criteria (see Table 1) by two reviewers independently. Any disagreements during screening will be resolved by discussion and if necessary with the opinion of a third reviewer. When full texts are not available, a copy will be requested from the corresponding author. If no response is received, reminder emails will be sent one and two weeks after the initial email.

All of studies included in the Cochrane Canada update (both AHTA included studies and those identified as a part of the rapid update)[13] will be cross-checked against the Retraction Watch Database to ensure such studies are not included. While no language restrictions will be applied, searches will only be conducted in English. When studies are unavailable in English, titles and abstracts will be translated using Google Translate, DeepL Pro or similar. Full texts of potentially eligible studies will subsequently be translated using DeepL Pro. These translations will be noted as a potential limitation.

2.3. Extracting relevant information

A standardised data extraction template will be developed and piloted before undertaking data extraction (see Appendix 6 for sample data extraction template). The data extraction template will be piloted independently by two reviewers. Pilot extractions will then be compared and the template will be amended, where required, to ensure consistent and reliable extraction between reviewers. Following this, data extraction will be completed by one reviewer and checked for accuracy and omissions by a second reviewer. Where disagreements occur, discussions will be held to reach consensus and where necessary, a third reviewer will be involved. Article details, study characteristics and study results will be extracted.

To summarise and present the totality of evidence, the results of the Cochrane Canada rapid update (including RoB results) will also be extracted by one reviewer, and checked for accuracy and omissions by a second reviewer.

2.4. Risk of bias assessment

Risk of bias for studies identified and included in this update will be assessed using the Quality in Prognosis Studies (QUIPS) tool.[21] As in the Cochrane Canada update, the key criteria used in this update will be bias due to confounding; selection bias; bias in measurement of exposures or outcomes; and bias due to missing data. Risk of bias related to whether an outcome was present at baseline (or presence was

unclear), will be weighted more heavily then the remaining key criteria, and outcomes from those studies will be considered at higher RoB.[13] To ensure consistency with QUIPS tool application across the Cochrane Canada and current update, two reviewers will assess 20% of the studies identified in the Cochrane Canada rapid update for RoB.[21] Any differences in overall ratings will be explored.

Following this, RoB assessment for studies identified and included in this update will be assessed independently by two reviewers. Where disagreements occur, discussions will be held to reach consensus and, where necessary, a third reviewer will be involved.

2.5. Certainty of evidence assessment

As in the Cochrane Canada update, certainty of evidence for each mental health outcome (anxiety, depression and suicidal ideation) will be assessed using the GRADE framework for prognostic studies.[22] This GRADE approach "specifies that the ideal study design to inform questions about the probability of a health outcome is a cohort study, registry or database linkage study that compares the outcome between people with different characteristics (for example, intakes of alcohol), and especially from one point in time to another."[13]

Of note, when applying GRADE for prognostic studies, observational evidence begins at a high certainty of evidence.[22] Following this, five domains will be used to rate down the certainty of evidence for each mental health outcome, where appropriate: RoB, inconsistency, indirectness, imprecision, and publication bias. Three domains will be used to rate up the certainty of evidence for each mental health outcome, where appropriate: a large effect, dose response, and opposing biases.[23] GRADE assessment for each outcome will be conducted as a group, by the review team. Discussion will be held to assess each outcome, and reach consensus.

The overall certainty of the evidence will be rated as very low, low, moderate or high, and, as per the Cochrane Canada rapid update, the wording used in the summary statements for the findings will reflect the certainty of evidence (see Table 2).[13]

Table 2. Certainty of evidence, descriptor and associated wording (as per the Cochrane Canada rapid update)

Certainty of evidence	Descriptor	Wording used in informative statements

High	Very confident that the variation in risk associated with the prognostic factor (probability of future events in those with or without the prognostic factor) lies close to that of the estimate.	"will" or "is"
Moderate	Moderately confident that the variation in risk associated with the prognostic factor (probability of future events in those with or without the prognostic factor) is likely to be close to the estimate, but there is a possibility that it is substantially different.	"likely"
Low	Certainty in the estimate is limited. The variation in risk associated with the prognostic factor (probability of future events in those with or without the prognostic factor) may be substantially different from the estimate.	"may"
Very low	Very little certainty in the estimate. The variation in risk associated with the prognostic factor (probability of future events in those with or without the prognostic factor) is likely to be substantially different from the estimate.	"very uncertain"

2.6. Summarising and presenting findings

The number of records identified, included, and excluded in this update will be presented in a PRISMA flow chart, including the reason for exclusion at full-text screening. The findings of the studies included within the current update, along with the Cochrane Canada findings, will be combined and narratively synthesised.[13]

Results tables from the Cochrane Canada rapid update will be recreated, where possible, and integrated with findings from the current update. Briefly:

- Relative effect measures (relative risks, odds ratios or hazard ratios), absolute risk differences, beta coefficients, or correlation values from each study, according to the amount or frequency of alcohol intake (or both), will be presented. The direction, and size, of the effect will then be interpreted in terms of the risk of developing or the association of mental health conditions with alcohol intake (see Appendix 7).
- Findings will be disaggregated by the association of alcohol consumption with mental health conditions based on different measures of consumption, including:

  - quantity of consumption
  - frequency of consumption
  - heavy episodic or binge drinking. Heavy episode drinking (HED) or binge drinking was defined in the Cochrane Canada rapid update as consuming five standard drinks or more for men, or four standard drinks or more for women. However, in Ireland, HED is defined as consuming six or more standard drinks on a single occasion, for both men and women.[24] The Irish definition will be used in the current update. For adolescents, the association of the outcomes with age of initiation of drinking will also be included.

- Tables will be colour-coded to indicate study RoB, with green indicating low RoB, yellow indicating moderate RoB, and red indicating high RoB.

A summary statement of the association between the evidence and the outcome, taking into consideration the certainty of the evidence (see Section 2.5), will then be presented.

3. Quality assurance process

The review will be undertaken in accordance with HIQA's Health Technology Assessment Directorate Quality Assurance Framework and led by an experienced member of staff. The report will be reviewed by at least two members of the senior management team to ensure processes are followed and quality is maintained. To further ensure quality and accurate interpretation of the information included, an Expert Advisory Group (EAG) comprising representation from the Department of Health, patient representatives, and individuals with relevant expertise in alcohol epidemiology, public health, public health policy, addiction, primary care, and dietetics will be sought as appropriate. Drafts of the protocol and report will be circulated to the EAG for review, and discussed at EAG meetings as appropriate.

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Appendix 1: AMSTAR 2 results for Adelaide Health Technology Assessment's systematic review and Cochrane Canada's rapid update

AMSTAR 2 Question	Adelaide Health Technology Assessment[11]	Cochrane Canada*[13]
1. Did the research questions and inclusion criteria for the review include the components of PICO (Population, Intervention, Comparison and Outcomes)?	Yes	Yes
2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?	Partial Yes	Partial Yes
3. Did the review authors explain their selection of the study designs for inclusion in the review?	Yes	Yes
4. Did the review authors use a comprehensive literature search strategy?	No Didn't justify the language.	No Didn't search registries, grey literature or perform backwards/forwards citation searching.
5. Did the review authors perform study selection in duplicate?	Yes	No
6. Did the review authors perform data extraction in duplicate?	Yes	No

AMSTAR 2 Question	Adelaide Health Technology Assessment[11]	Cochrane Canada*[13]
7. Did the review authors provide a list of excluded studies and justify the exclusions?	Yes	No
8. Did the review authors describe the included studies in adequate detail?	Yes	Yes
9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?	Yes	Yes
10. Did the review authors report on the sources of funding for the studies included in the review?	Yes	No
11. If meta-analysis was performed, did the review authors use appropriate methods for statistical combination of results?	N/A (No meta-analysis performed)	N/A (No meta-analysis performed)
12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?	N/A (No meta-analysis performed)	N/A (No meta-analysis performed)
13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review?	Yes	Yes
14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?	Yes	Yes
15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?	No	No
16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?	Yes	No

*The Cochrane Canada resource was a rapid update. However, it was assessed by AMSTAR 2, which is developed for assessing systematic reviews. This should be taken into accounting when interpreting the results of the assessment.

Appendix 2: Notable deviations from Cochrane Canada's rapid update methodology

Section	Focus area	Deviation from Cochrane Canada's methodology
Searching for and selecting sources	Search strategy	The current review uses a broader range of databases and sources for identification of literature. This includes searching grey literature sources and registries.
	PECOS – Population	The current review will not search for studies conducted in a specific region or in a specific minority.
	Language	The current review will not limit the search by language.
	Time frame	The current review will include publications from December 2021 to the final search date.
	Screening	Title and abstract screening will be performed in duplicate, by two researchers independently.

Appendix 3: Preliminary search strategies

Database name	Medline and Embase via Ovid multidatabase search
#	**Searches**
1	(anxious or anxiety or depress* or suicid* or psychol* or psychopath* or psychiat*).ti.
2	((alcohol* adj2 (use* or drink* or consume or consumption or intake)) or (drink* or beer or wine or spirits)).ab.
3	1 and 2
4	(anxious or anxiety or depress* or suicid*).ab.
5	alcohol*.ti.
6	(drink* or substance use*).ti. and alcohol.hw,kf.
7	5 or 6
8	4 and 7
9	3 or 8
10	(associat* or correlat* or odds or risk or risks or regression or more likely or less likely).tw.
11	9 and 10
12	limit 11 to yr="2022 -Current"
13	conference abstract/ or conference*.pt. or case report/ or review.pt. or editorial.pt. or letter.pt.
14	12 not 13
15	(serum or mice or mouse or rodent* or MRI or gene or genes or genetic or receptor* or antigen*).mp.
16	14 not 15
17	remove duplicates from 16

Database name	The Cochrane Library
ID	**ID Search**
#1	(anxious OR anxiety OR depress* OR suicid*):ti (Word variations have been searched)
#2	(alcohol* NEAR/3 (use* or drink* or consume or consumption or intake)):ab AND (drink* or beer or wine or spirits):ab (Word variations have been searched)
#3	#1 AND #2
#4	((anxious or anxiety or depress* or suicid*)):ab (Word variations have been searched)
#5	(alcohol):ti (Word variations have been searched)
#6	((drink* or substance use*)):ti AND (alcohol):ti,ab,kw (Word variations have been searched)
#7	#5 OR #6
#8	#4 AND #7
#9	#3 OR #8
#10	(associat* or correlat* or odds or risk or risks or regression or more likely or less likely) (Word variations have been searched)
#11	#9 AND #10 with Cochrane Library publication date from Dec 2021 to present

Database name		CINAHL and APA PsycINFO via Ebsco	
#	**Query**	**Limiters/Expanders**	**Last Run Via**
S13	S11 NOT S12	Expanders - Apply equivalent subjects Search modes - Proximity	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo;CINAHL Complete
S12	serum or mice or mouse or rodent* or MRI or gene or genes or genetic or receptor* or antigen*	Expanders - Apply equivalent subjects Search modes - Proximity	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo;CINAHL Complete
S11	S9 AND S10	Limiters - Publication Date: 20211201- Search modes - Proximity	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo;CINAHL Complete
S10	TX ((associat* or correlat* or odds or risk or risks or regression or more likely or less likely)	Search modes - Proximity	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo;CINAHL Complete
S9	S3 OR S8	Search modes - Proximity	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo;CINAHL Complete

S8	S4 AND S7	Search modes - Proximity	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo;CINAHL Complete
S7	S5 OR S6	Search modes - Proximity	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo;CINAHL Complete
S6	TI ((drink* or substance use*)) AND XB alcohol	Search modes - Proximity	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo;CINAHL Complete
S5	TI alcohol	Search modes - Proximity	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo;CINAHL Complete
S4	AB (anxious or anxiety or depress* or suicid*)	Search modes - Proximity	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo;CINAHL Complete
S3	S1 AND S2	Search modes - Proximity	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo;CINAHL Complete
S2	(AB (alcohol* N3 (use* or drink* or consume or consumption or intake))) OR (	Expanders - Apply equivalent subjects Search modes - Proximity	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo;CINAHL Complete

	AB drink* or beer or wine or spirits))		
S1	TI (anxious OR anxiety OR depress* OR suicid*)	Expanders - Apply equivalent subjects Search modes - Proximity	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - APA PsycInfo;CINAHL Complete

Appendix 4: Registries and grey literature sources

Registries and grey literature sources adapted from those searched in the AHTA systematic review[11]:

Registries:

- Australian New Zealand Clinical Trials Registry
- ClinicalTrials.gov
- ISRCTN registry (International Standard Registered Clinical/soCial sTudy Number)
- Trials Register of Promoting Health Interventions (TRoPHI)
- WHO International Clinical Trials Registry Platform (ICTRP)

Grey literature sources:

- Australia
  - National Drug and Alcohol Research Centre
  - National Drug Research Institute
- Canada
  - Health evidence Canada
- Ireland
  - Health Research Board (HRB) National Drugs Library
  - Lenus – The Irish Health Repository
- UK
  - National Institute of Health and Care Excellence
  - International Prospective Register of Systematic Reviews (PROSPERO)
  - UK Health Security Agency
- USA
  - Agency for Healthcare Research and Quality
  - Centres for Disease Control and Prevention
  - U.S. Preventive Services Task Force
  - National Institute on Alcohol Abuse and Alcoholism
- Worldwide

- World Health Organisation
- International Agency for Research on Cancer
- World Cancer Research Fund

Appendix 5: Examples of outcomes included (as categorised by the DSM-5 and ICD-10)

DSM-5

Depressive Disorders

- Disruptive Mood Dysregulation Disorder
- Major Depressive Disorder
- Persistent Depressive Disorder (Dysthymia)
- Premenstrual Dysphoric Disorder
- Substance/Medication-Induced Depressive Disorder
- Depressive Disorder Due to Another Medical Condition
- Other Specified Depressive Disorder
- Unspecified Depressive Disorder
- Unspecified Mood Disorder

Anxiety Disorders

- Separation Anxiety Disorder
- Selective Mutism
- Specific Phobia
- Social Anxiety Disorder (Social Phobia)
- Panic Disorder
- Panic Attack (Specifier)
- Agoraphobia
- Generalized Anxiety Disorder
- Substance/Medication-Induced Anxiety Disorder
- Anxiety Disorder Due to Another Medical Condition
- Other Specified Anxiety Disorder
- Unspecified Anxiety Disorder

Suicidal Behavior

- Current Suicidal Behaviour
- History of Suicidal Behavior

ICD-10

Depressive episode

- Mild depressive episode
- Moderate depressive episode
- Severe depressive episode without psychotic symptoms
- Severe depressive episode with psychotic symptoms
- Other depressive episodes
- Depressive episode, unspecified

Recurrent depressive disorder

- Recurrent depressive disorder, current episode mild
- Recurrent depressive disorder, current episode moderate
- Recurrent depressive disorder, current episode severe without psychotic symptoms
- Recurrent depressive disorder, current episode severe with psychotic symptoms
- Recurrent depressive disorder, currently in remission
- Other recurrent depressive disorders
- Recurrent depressive disorder, unspecified

Other anxiety disorders

- Panic disorder (episodic paroxysmal anxiety)
- Generalised anxiety disorder
- Mixed anxiety and depressive disorder
- Other mixed anxiety disorders
- Other specified anxiety disorders
- Anxiety disorder, unspecified

Other symptoms nd signs involving emotional state

- Suicidal ideation (tendencies)

Appendix 6: Sample data extraction template

	Information Extracted
Article details	
Study ID	
Author(s)	
Year of Publication	
Funding Source(s)	
Study characteristics	
Study Design	
Country	
Population included and sample size (of sub-groups also, where appropriate)	
Outcome(s) and measurement method(s)	
Measure of alcohol consumption	
Follow-up period(s)	
Results of the study	
Outcome result(s) (such as adjusted and unadjusted odds ratios and confidence intervals, and time periods)	
Overall	
Author Conclusions	
Limitations Noted	

Appendix 7: Interpretation of relative risk and correlation values

Outcome result	
Relative risk (RR)*	**Interpretation**
1.1-1.5	Weak or small
1.6-3.0	Moderate
≥3.1	Strong or large
Correlation	
<0.3	Little to no correlation
0.3-0.5	Low
0.5-0.7	Moderate
0.7-0.9	High
0.9-1.0	Very high

*The Monson scale for interpreting RRs, as suggested by Oleckno[25] will be used to interpret RRs.

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