

Supplementary Material

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Review

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Appendix A: Detailed Database-specific Search Strategies

PubMed

1. (alcohol* OR binge* OR drink*) OR ("Alcoholism"[Mesh])
753,245 found
2. (((socio?demo*) OR (demograp*) OR (income) OR (ethnic*) OR (religio*) OR (socio?econ*)))
1,070,774 found
3. ("Sociodemographic Factors"[Mesh]) OR ("Socioeconomic Factors"[Mesh])
526,342 found
4. (colleg* OR adoles* OR universi* OR studen* OR institut* OR "higher education" OR "young adult")
23,202,255 found
5. "Underage Drinking"[Mesh]
1,293 found
6. "Adolescent"[Mesh]
2,267,809 found
7. "Alcohol Drinking in College"[Mesh]
1,057 found
8. "College fraternities and sororities"[Mesh]
38 found
9. ("Association of Southeast Asian Nations" OR "asean" OR "burma" OR burmes* OR cambodi* OR indones* OR "laos" OR malay* OR "malay" OR philippi* OR filipp* OR "thai" OR thai* OR vietna*)
397,806 found
10. ("Asian people"[Mesh])
92,381 found
11. "Myanmar"[Mesh] OR "Cambodia"[Mesh] OR "Indonesia"[Mesh] OR "Laos"[Mesh] OR "Malaysia"[Mesh] OR "Philippines"[Mesh] OR "Thailand"[Mesh] OR "Vietnam"[Mesh]
95,865 found

Final query: (((alcohol* OR binge* OR drink*) OR ("Alcoholism"[Mesh])) AND (colleg* OR adoles* OR universi* OR studen* OR institut* OR "higher education" OR "young adult" OR "Adolescent"[Mesh] OR "College fraternities and sororities"[Mesh])) OR ("Underage Drinking"[Mesh] OR "Alcohol Drinking in College"[Mesh])) AND (((socio?demo*) OR (demograp*) OR (income) OR (ethnic*) OR (religio*) OR (socio?econ*)) OR ("Sociodemographic Factors"[Mesh]) OR ("Socioeconomic Factors"[Mesh])) AND (("Association of Southeast Asian Nations" OR "asean" OR "burma" OR burmes* OR cambodi* OR indones* OR "laos" OR malay* OR "malay" OR philippi* OR filipp* OR "thai" OR thai* OR vietna*) OR ("Asian people"[Mesh]) OR ("Myanmar"[Mesh] OR "Cambodia"[Mesh] OR "Indonesia"[Mesh] OR "Laos"[Mesh] OR "Malaysia"[Mesh] OR "Philippines"[Mesh] OR "Thailand"[Mesh] OR "Vietnam"[Mesh]))

Global Index Medicus

1. (alcho*) AND (collection_gim:("WPRIM" OR "IMSEAR"))
16,534 found
2. (binge*) OR (drink*) AND (collection_gim:("WPRIM" OR "IMSEAR"))
9,452 found
3. (mh:c25.775.100.250* OR mh:f03.900.100.350*) AND (collection_gim:("WPRIM" OR "IMSEAR"))
606 found
4. ((socio?demo*) OR (demograp*) OR (income) OR (ethnic*) OR (religio*) OR (socio?econ*)) AND (collection_gim:("WPRIM" OR "IMSEAR"))
35,125 found
5. (mh:I01.880.853.965* OR mh:I01.880.853.996* OR mh:N01.824* OR mh:SP2.070.315.420.566* OR mh:SP3.311.900.686.409* OR mh:SP3.522.233*) AND (collection_gim:("WPRIM" OR "IMSEAR"))
8,454 found
6. (colleg* OR adoles* OR universi* OR studen* OR institut* OR "higher education" OR "young adult") AND (collection_gim:("WPRIM" OR "IMSEAR"))
192,659 found
7. (mh:F01.145.022.750* OR mh:F01.145.317.269.875* OR mh:I01.880.735.878*) AND (collection_gim:("WPRIM" OR "IMSEAR"))
2 found
8. (mh:M01.060.057*) AND (collection_gim:("WPRIM" OR "IMSEAR"))
40,853 found
9. (mh:F01.145.317.269.625) AND (collection_gim:("WPRIM" OR "IMSEAR"))
3 found
10. (mh:N03.540.162*) AND (collection_gim:("WPRIM" OR "IMSEAR"))
0 found
11. ("Association of Southeast Asian Nations" OR "asean" OR "burma" OR burmes* OR cambodi* OR indones* OR "laos" OR malay* OR "malay" OR philippi* OR filipp* OR "thai" OR thai* OR vietna*) AND (collection_gim:("WPRIM" OR "IMSEAR"))
28,267 found
12. (mh: M01.686.330*) AND (collection_gim:("WPRIM" OR "IMSEAR"))
0 found

Final query: ((((((alcho*)) OR ((binge*) OR (drink*)) OR (mh:c25.775.100.250* OR mh:f03.900.100.350*)) AND ((colleg* OR adoles* OR universi* OR studen* OR institut* OR "higher education" OR "young adult") OR (mh:M01.060.057*) OR (mh:N03.540.162*))) OR ((mh:F01.145.022.750* OR mh:F01.145.317.269.875* OR mh:I01.880.735.878*) OR (mh:F01.145.317.269.625)))) AND (((socio?demo*) OR (demograp*) OR (income) OR (ethnic*) OR (religio*) OR (socio?econ*)) OR (mh:I01.880.853.965* OR mh:I01.880.853.996* OR mh:N01.824* OR mh:SP2.070.315.420.566* OR mh:SP3.311.900.686.409* OR mh:SP3.522.233*)) AND ("Association of Southeast Asian Nations" OR "asean" OR

"burma" OR burmes* OR cambodi* OR indones* OR "laos" OR malay* OR "malay" OR philippi* OR filipp* OR "thai" OR thai* OR vietna*) OR (mh: M01.686.330*)) AND (collection_gim:("WPRIM" OR "IMSEAR"))

Global Health

1. (alcho* or (binge adj3 drink*)).ti,ab,kw.
2. (socio?demo* or demograp* or income or ethnic* or religio*).ti,ab,kw.
3. socio?econ*.ti,ab,kw.
4. (colleg* or adoles* or universi* or student* or (young adj2 adult) or (high* adj2 educ* or institu*).ti,ab,kw.
5. ("Association of Southeast Asian Nations" or ASEAN or burma or burmes* or cambodi* or Indones* or Laos or Malay* or Malay or Philippi* or Filipp* or Thai or thai* or vietna*).ti,ab,kw.
6. exp "drinking"/ use cagz or exp "alcoholic beverages"/ use cagz
7. exp "alcoholism"/ use cagz or exp "alcohol intake"/ use cagz
8. exp "socioeconomic status"/ use cagz or exp "demography"/ use cagz or exp "risk factors"/ use cagz or exp "education"/ use cagz or exp "ethnicity"/ use cagz
9. 1 or 6 or 7
10. 2 or 3 or 8
11. exp "college students"/ use cagz or exp "students"/ use cagz or exp "adolescents"/ use cagz
12. exp "South East Asia"/ use cagz or exp "Thailand"/ use cagz or exp "Indonesia"/ use cagz or exp "Philippines"/ use cagz or exp "Asia"/ use cagz or exp "Malaysia"/ use cagz
13. 4 or 11
14. 5 or 12
15. 9 and 10 and 13 and 14

Garuda Rujukan Digital

As the search interface was very basic, we searched on "alcoholism" (96 documents) and "alcohol addiction" (65 documents); then filtered manually. Many articles are non-English and excluded. Four potentially relevant publications were identified and retained.

Web of Science

1. ALL=(alcho*)
815,052 found
2. TS=(binge NEAR/3 drink*) OR TI=(binge NEAR/3 drink*) OR AB=(binge NEAR/3 drink*)
11,977 found
3. ALL=(socio?demo* OR demograp* OR income OR ethnic* OR religio* OR socio?econ*)
1,564,089 found
4. ALL=(colleg* OR adoles* OR universi* OR studen* OR institut*) OR TS=(young NEAR/2 adult) OR TS=(high* NEAR/2 educ*) OR TI=(young NEAR/2 adult) OR TI=(high* NEAR/2 educ*) OR AB=(young NEAR/2 adult) OR AB=(high* NEAR/2 educ*)
39,708,789 found

5. ALL= ("Association of Southeast Asian Nations" OR asean OR burma OR burmes* OR cambodi* OR indones* OR laos OR malay* OR malay OR philippi* OR filipp* OR thai OR thai* OR vietna*)
1,443,869 found
6. (1 OR 2) AND 3 AND 4 AND 5
1066 found

Scopus

1. TITLE-ABS-KEY (alcoho* OR (binge W/3 drink*))
1,107,406 documents found
2. TITLE-ABS-KEY (socio?demo* OR demograp* OR income OR ethnic* OR religio* OR socio?econ*)
2,144,365 documents found
3. TITLE-ABS-KEY (colleg* OR adoles* OR universi* OR studen* OR (young W/2 adult) OR (high* W/2 educ*) OR institut*)
8,881,510 documents found
4. TITLE-ABS-KEY ("Association of Southeast Asian Nations" OR asean OR burma OR burmes* OR cambodi* OR indones* OR laos OR malay* OR malay OR philippi* OR filipp* OR thai OR thai* OR vietna*)
660,740 documents found
5. (TITLE-ABS-KEY ("Association of Southeast Asian Nations" OR asean OR burma OR burmes* OR cambodi* OR indones* OR laos OR malay* OR malay OR philippi* OR filipp* OR thai OR thai* OR vietna*)) AND (TITLE-ABS-KEY (colleg* OR adoles* OR universi* OR studen* OR (young W/2 adult) OR (high* W/2 educ*) OR institut*)) AND (TITLE-ABS-KEY (socio?demo* OR demograp* OR income OR ethnic* OR religio* OR socio?econ*)) AND (TITLE-ABS-KEY (alcoho* OR (binge W/3 drink*)))
636 documents found

Medline

1. (alcoho* or (binge adj3 drink*)).mp.
2. (socio?demo* or demograp* or income or ethnic* or religio*).mp.
3. socio?econ*.mp.
4. (colleg* or adoles* or universi* or student* or (young adj2 adult) or (high* adj2 educ* or institu*).mp.
5. ("Association of Southeast Asian Nations" or ASEAN or burma or burmes* or cambodi* or Indones* or Laos or Malay* or Malay or Philippi* or Filipp* or Thai or thai* or vietna*).mp.
6. exp "Underage Drinking"/ use medall or exp "Alcoholic Drinking"/ use medall or exp "Alcohol Beverages"/ use medall
7. exp "Alcoholism"/ use medall or exp "Alcohol Drinking"/ use medall
8. exp "Socioeconomic Factors"/ use medall or exp "Sociodemographic Factors"/ use medall
9. 1 or 6 or 7
10. 2 or 3 or 8

11. exp "Students"/ use medall or exp "Universities"/ use medall or exp "Young Adult"/ use medall
12. exp "Asia, Southeastern"/ use medall or exp "Thailand"/ use medall or exp "Indonesia"/ use medall or exp "Philippines"/ use medall or exp "Malaysia"/ use medall
13. 4 or 11
14. 5 or 12
15. 9 and 10 and 13 and 14

Embase

1. (alcoho* or (binge adj3 drink*)).mp.
2. (socio?demo* or demograp* or income or ethnic* or religio*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]
3. socio?econ*.mp.
4. (colleg* or adoles* or universi* or student* or (young adj2 adult) or (high* adj2 educ*) or institut*).mp.
5. ("Association of Southeast Asian Nations" or ASEAN or burma or burmes* or cambodi* or Indones* or Laos or Malay* or Malay or Philippi* or Filipp* or Thai or thai* or vietna*).mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword heading word, floating subheading word, candidate term word]
6. exp "underage drinking"/ or exp "drinking behavior"/ use emcxd or exp "alcohol abuse"/ use emcxd or exp "alcohol consumption"/ use emcxd or exp "alcohol intoxication"/ use emcxd or exp "Alcohol Use Disorders Identification Test"/ use emcxd or exp "alcohol rehabilitation"/ use emcxd or exp "alcohol urge questionnaire"/ use emcxd or exp "alcohol withdrawal seizure"/ use emcxd
7. exp "alcoholism"/ use emcxd or exp "experimental alcoholism"/ use emcxd
8. exp "sociodemographics"/ use emcxd or exp "socioeconomics"/ use emcxd
9. 1 or 6 or 7
10. 2 or 3 or 8
11. exp "college student"/ use emcxd or exp "adolescent"/ use emcxd
12. exp "Southeast Asia"/ use emcxd or exp "Thailand"/ use emcxd or exp "Indonesia"/ use emcxd or exp "Philippines"/ use emcxd or exp "Asia"/ use emcxd or exp "Malaysia"/ use emcxd
13. 4 or 11
14. 5 or 12
15. 9 and 10 and 13 and 14

Cochrane

1. MeSH descriptor: [Alcoholism] explode all trees
5,130 documents found
2. MeSH descriptor: [Sociodemographic Factors] explode all trees
15 documents found
3. MeSH descriptor: [Socioeconomic Factors] explode all

- trees
14,434 documents found
4. ((alcohol*) OR (binge NEAR/3 drink*)):ti,ab,kw
40,717 documents found
 5. 1 OR 4
40,717 documents found
 6. (socio?demo* OR demograp* OR income OR ethnic* OR religio*):ti,ab,kw
(word variations have been searched)
86,222 documents found
 7. (socio?econ*):ti,ab,kw
(word variations have been searched)
13,040 documents found
 8. 6 OR 7 OR 2 OR 3
100,904 documents found
 9. (colleg* OR adoles* OR universi* OR student* OR (young NEAR/2 adult) OR (high* NEAR/2 educ*) OR (institut*)):ti,ab,kw
(word variations have been searched)
397,256 documents found
 10. ("Association of Southeast Asian Nations" OR ASEAN OR burma OR burmes* OR cambodi* OR Indones* OR Laos OR Malay* OR Philippi* OR Filipp* OR Thai OR thai* OR vietna*):ti,ab,kw
(word variations have been searched)
25,623 documents found
 11. MeSH descriptor: [Underage Drinking] explode all trees
127 documents found
 12. MeSH descriptor: [Adolescent] this term only
137,774 documents found
 13. MeSH descriptor: [Alcohol Drinking in College] explode all trees
167 documents found
 14. MeSH descriptor: [College Fraternities and Sororities] explode all trees
5 documents found
 15. MeSH descriptor: [Athletes] explode all trees
1,773 documents found
 16. MeSH descriptor: [Asian] explode all trees
342 documents found
 17. 15 OR 14 OR 12 OR 9
397,775 documents found
 18. 16 OR 10
25,908 documents found
 19. 8 AND ((5 AND 17) OR (11 OR 13)) AND 18
48 documents found
1. **Population:** University students (who are not necessarily always adult), including undergraduates, postgraduates, and in specialized fields (like medicine) enrolled in a college or university in an ASEAN country were considered as the population of interest. The Association of Southeast Asian Nations (ASEAN) includes ten countries: Indonesia, Malaysia, The Philippines, Singapore, Thailand, Brunei Darussalam, Vietnam, Laos, Myanmar, and Cambodia.
 2. **Intervention / exposures:** Due to the nature of the study outcome and the objectives, most studies are not expected to involve a specific intervention, but instead report on exposures associated with the outcome. Exposures of primary interest, in keeping with the objectives, are socio-demographic variables, including (but not limited to) gender, age, income, parental alcohol consumption, religion and religiosity, and peer influence.
 3. **Comparator:** University students in similar settings who do not consume alcohol are considered as the control or comparator group.
 4. **Outcomes:** Alcohol consumption is the primary outcome of interest, but related outcomes (like binge drinking) were also compiled, where applicable or available.
 5. **Study design:** The type of study was not restricted in the initial literature search, and both observational (e.g., cross-sectional, cohort) and interventional studies were considered for inclusion.
 6. **Timeframe:** While recent research (1990–2024) was prioritized, the review did not limit the search by publication date, acknowledging that earlier studies may be particularly relevant in countries with limited recent studies.

Appendix B: Quality Appraisal of Selected Studies using AXIS

Table 1 provides quality appraisal of each study included in the review using the AXIS instrument. The specific questions underlying the question IDs in the table are reproduced in Table 2.

Appendix C: Inclusion criteria based on PICOST framework

Details governing each of the PICOST categories that were used for developing the inclusion/exclusion criteria are provided below:

Table 1. Quality assessment of cross-sectional studies included in this review, using the AXIS critical appraisal instrument

Study	Q1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Study quality
Htet et al 2020	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	U	N	Y	Y	Y	Y	N	Y	H
Jaichuen et al 2018	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	U	N	Y	Y	Y	Y	N	Y	H
Mathialagan and Teng 2017	Y	Y	N	Y	N	N	N	Y	Y	Y	Y	Y	U	N	N	Y	Y	Y	N	Y	M
Buakate et al 2022	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	U	N	Y	Y	Y	N	N	Y	H
San San et al 2010	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	Y	H
Phoosuan 2019	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	U	N	Y	Y	Y	N	N	Y	H
Supit et al 2017	Y	Y	N	Y	N	Y	N	Y	Y	Y	Y	Y	U	N	Y	Y	Y	N	N	Y	M
Aung et al 2019	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	N	Y	H
Soket al 2020	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	N	Y	H
T Nguyen et al 2019	Y	Y	N	Y	N	N	N	Y	Y	Y	Y	N	U	N	Y	Y	Y	Y	N	Y	M
Caffrey et al 1996	Y	Y	N	Y	Y	Y	N	Y	Y	N	Y	Y	U	N	Y	Y	Y	Y	N	Y	H
Tonkuriman et al 2019	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	U	N	Y	Y	Y	Y	N	Y	H
Boonchuaythanasit et al 2021	Y	Y	N	Y	N	Y	N	Y	Y	Y	Y	Y	U	N	Y	Y	Y	Y	N	Y	H
Yi et al 2017	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	N	Y	H
Wattanapisit, Abdul Rahman et al 2022	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	U	N	Y	Y	Y	Y	N	Y	H

a Question texts for each question are reported in Table 2

b Y=YES, N=NO, U=DO NOT KNOW; note that for Q19, N is considered as a positive score for the study, while for all other questions, Y is positive (encoded as 1), and both N and U are encoded as negative or potentially negative (score encoded as 0)

c For the final column of the table, a study is deemed as H: high quality (low risk of bias), M: medium quality (moderate risk of bias), and L: low quality (high risk of bias) for scores between 15-20, 10-14, and <10, respectively

Table 2. Texts of questions in the AXIS critical appraisal instrument

Question ID	Relevant Section	Text
1	Introduction	Were the aims/objectives of the study clear?
2	Methods	Was the study design appropriate for the stated aim(s)?
3		Was the sample size justified?
4		Was the target/reference population clearly defined? (Is it clear who the research was about?)
5		Was the sample frame taken from an appropriate population base so that it closely represented the target/reference population under investigation?
6		Was the selection process likely to select subjects/participants that were representative of the target/reference population under investigation?
7		Were measures undertaken to address and categorise non-responders?
8		Were the risk factor and outcome variables measured appropriate to the aims of the study?
9		Were the risk factor and outcome variables measured correctly using instruments/measurements that had been trialled, piloted or published previously?
10		Is it clear what was used to determine statistical significance and/or precision estimates? (eg, p values, CIs)
11		Were the methods (including statistical methods) sufficiently described to enable them to be repeated?
12	Results	Were the basic data adequately described?
13		Does the response rate raise concerns about non-response bias?
14		If appropriate, was information about non-responders described?
15		Were the results internally consistent?
16		Were the results for the analyses described in the methods, presented?
17	Discussion	Were the authors' discussions and conclusions justified by the results?
18		Were the limitations of the study discussed?
19	Other	Were there any funding sources or conflicts of interest that may affect the authors' interpretation of the results?
20		Was ethical approval or consent of participants attained?