THE ANROWS EVIDENCE PORTAL

ANROWS Instrument for assessing Risk of bias in quantitative Impact Studies (ANROWS-IRIS):

RISK OF BIAS RATING TOOL

ANROWS

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Acknowledgement of Country

ANROWS acknowledges the Traditional Owners of the land across Australia on which we work and live. We pay our respects to Aboriginal and Torres Strait Islander Elders past and present, and we value Aboriginal and Torres Strait Islander histories, cultures, and knowledge. We are committed to standing and working with Aboriginal and Torres Strait Islander peoples, honouring the truths set out in the Warawarni-gu Guma Statement.

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About this document

The ANROWS Instrument for assessing Risk of bias in quantitative Impact Studies (ANROWS-IRIS) is a bespoke risk of bias tool developed as part of the ANROWS Evidence Portal. It has been designed for use with the quantitative impact evaluations included in the ANROWS Evidence Portal as well as for systematic reviews in the social and psychological sciences more broadly. The tool is designed to be applied to quantitative impact evaluations of interventions to critically appraise them across six domains that collectively examine whether the design, reporting and implementation of an evaluation study can support the conclusion that the intervention caused a change in the measured outcomes, or if study flaws are likely to lead to over- or underestimates of the effect of the intervention.

The document contains the ANROWS-IRIS rating tool questions and formulae for generating an overall risk of bias rating. It should be read alongside the *ANROWS Instrument for assessing Risk of bias in quantitative Impact Studies (ANROWS-IRIS): Risk of bias tool guidance document* and *Development of the ANROWS Instrument for assessing Risk of bias in quantitative Impact Studies (ANROWS-IRIS): Technical report.*

Domain 1: Study design

Q1 Select the study design

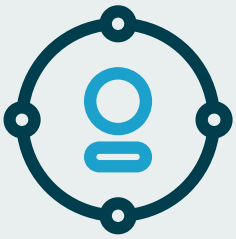
a. Randomised controlled trial (RCT)
b. Quasi-experimental impact evaluation with comparison group(s)
c. Long interrupted time series without comparison group (score this domain and go to Q3)
d. Single group pre–post design (score this domain and go to Q3)

Q2 Is the comparison condition or group comprised of treatment refusers or drop-outs?

a. Yes (score this domain and go to end)
b. No

Rate risk of bias in Domain 1 (Study design) as ...		Selection
Low	Q1 = a **AND** Q2 = b	○
Moderate	Q1 = b **AND** Q2 = b	○
	OR	
	Q1 = c	○
High	Q1 = d	○
Critically high	Q2 = a	○

Domain 2: Selection bias



Q3 Do the authors clearly describe the target population?

a. Yes
b. No

Q4 Do the authors clearly describe the sampling frame?

a. Yes
b. No

Q5 Is the sampling frame likely to be appropriate for the target population?

a. Yes
b. Somewhat
c. No
d. Can't tell (only select if Q3 = b)

Q6 Do the authors clearly describe the sampling approach?

a. Yes
b. No

Q7 Are the study participants likely to be representative of the sampling frame?

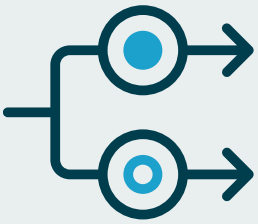
a. Yes
b. Somewhat
c. No
d. Can't tell (only select if Q4 = b **OR** Q6 = b)

Q8 Do the authors demonstrate that the participants are likely to be representative of the target population?

a. Yes
b. No

Rate risk of bias in Domain 2 (Selection bias) as ...		Selection
Low	Q5 = a **AND** Q6 = a **AND** Q7 = a	○
	OR	
	Q8 = a	○
Moderate	(Q5 = a or b) **AND** Q6 = a **AND** Q7 = b **AND** Q8 = b	○
	OR	
	Q5 = b **AND** Q6 = a **AND** (Q7 = a or b) **AND** Q8 = b	○
High	Q3 = b **AND** Q4 = b **AND** Q6 = b **AND** Q8 = b	○
	OR	
	(Q5 = c or d) **AND** Q8 = b	○
	OR	
	(Q7 = c or d) **AND** Q8 = b	○

Domain 3: Confounders



NOTE: If study is single group pre–post design, skip Q9–11 and go to Q12.

Q9 Do the authors state or demonstrate if the comparison group was equivalent to the treatment group prior to the intervention?

a. Yes
b. No (score this domain and go to Q12)

Q10 Are there any meaningful differences between the groups?

a. Yes
b. No (score this domain and go to Q12)

Q11 Do authors attempt to control for confounding factors in their analysis?

a. Yes
b. No

Rate risk of bias in Domain 3 (Confounders) as ...		Selection
Low	Q9 = a **AND** Q10 = b	○
Moderate	Q9 = a **AND** Q10 = a **AND** Q11 = a	○
High	Q9 = b **OR** Q9 = a **AND** Q10 = a **AND** Q11 =b	○ ○

Domain 4:
Data collection methods

Q12 Do the outcomes have face validity?

a. Yes
b. No (score this domain and go to Q14)

Q13 Do the authors describe how they measured each outcome?

a. Yes
b. Somewhat
c. Mixed
d. No

Rate risk of bias in Domain 4 (Data collection methods) as ...		Selection
Low	Q12 = a **AND** (Q13=a or c)	○
Moderate	Q12 = a **AND** Q13 = b	○
High	Q12 = b **OR** Q13 = d	○ ○

Domain 5: Withdrawals and drop-outs

NOTE: If the study is a single group pre–post design, skip Q14–16 and go to Q17.

Q14 Is there a meaningful difference in attrition or drop-out between the treatment and comparison group?

a. Yes
b. No (score this domain and go to Q17)
c. There is no attrition in either group (score this domain and go to Q17)
d. Unclear (score this domain and go to Q17)

Q15 Is the attrition systematic or at random?

a. Systematic
b. Random (score this domain and go to Q17)
c. Unclear (score this domain and go to Q17)

Q16 If systematic, did the authors control for the impact of differential attrition?

a. Yes
b. No
c. Unclear

Rate risk of bias in Domain 5 (Withdrawals and drop-outs) as ...		**Selection**
Low	Q14 = b or c	○
Moderate	Q14 = a **AND** Q15 = a **AND** Q16 = a	○
	OR	
	Q14 = a **AND** Q15 = b	○
High	Q14 = a **AND** Q15 =a **AND** Q16 = b	○
	OR	
	Q14 = d **OR** Q15 = c **OR** Q16 = c	○

Domain 6: Intervention integrity and fidelity

Q17 Was the intervention implemented as intended (as per protocol)?

a. Yes
b. Somewhat
c. No

Q18 Did the authors report that co-intervention or contamination occurred?

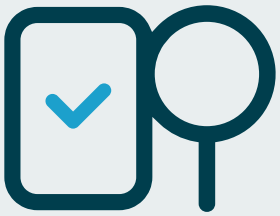
a. Yes
b. No (score this domain and go to end)

Q19 If contamination or co-intervention was reported, did the authors report the results of relevant sensitivity analyses?

a. Yes
b. No

Rate risk of bias in Domain 6 (Intervention integrity and fidelity) as ...		**Selection**
Low	Q17 = a **AND** Q18 = b	○
Moderate	Q17 = b **AND** Q18 = b	○
	OR	
	Q17=b **AND** Q18=a **AND** Q19=a	○
High	Q17 = c	○
	OR	
	Q18 = a **AND** Q19 = b	○

Overall risk of bias rating



Each study begins with a rating on Domain 1 (Study design) which can then be downgraded depending on the ratings for subsequent domains. Any study that uses treatment refusers or drop-outs as a comparison group (Q2) is rated as *Very high*.

Upgrading can occur if a study is rated as *Low* or *Moderate* on Domain 1 and *Low* across each of Domains 2 to 6:

- Experimental designs (Domain 1 = *Low*) can be upgraded to *Very low* if they are rated as *Low* on every subsequent domain.
- Quasi-experimental designs (Domain 1 = *Moderate*) can be upgraded to *Low* if they are rated as *Low* on all subsequent domains.

Use the ratings for all domains to establish an overall rating of risk of bias in the estimate of intervention effectiveness, according to the following table.

Overall risk of bias	Domain 1	Domains 2 to 6	Selection
Very low	Low	Low on all Domains 2 to 6	○
Low	Low	1 Moderate, 0 High	○
	Moderate	Low on all Domains 2 to 6	○
Moderate	Low	2 or more Moderate, 0 High	○
	Moderate	1 or more Moderate, 0 High	○
Moderate-high	Low OR Moderate	1 or 2 High	○
High	Low OR Moderate	3 High	○
	High	**Not** High on Domains 2, 4 **AND** 6	○
Very high	Low OR Moderate	4 or more High	○
	High	High on any of Domains 2, 4 **OR** 6	○
	Critically high	Any combination	○

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