Overview of Synthesis and Included Studies table (OSIS)

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What is an Overview of Synthesis and Included Studies (OSIS) table?

An OSIS table summarises the key study characteristics of studies included in a systematic review. It may include characteristics such as study population, intervention(s), comparators and study design. The layout should reflect the structure of the synthesis, classifying included studies using any groups or categories defined for use in the synthesis.

What is the purpose of an OSIS table?

Prior to publication, summarising the key characteristics of each included study is an important step in preparing for synthesis, giving authors a clear picture of which studies are comparable and will be eligible for each synthesis within the review. Chapter 9 of the Cochrane Handbook discusses the importance of understanding study characteristics as a step in preparing for synthesis.

In a published review, the aim of the OSIS table is to provide similar clarity for readers by presenting a short, easily accessible, tabulated summary of the studies included in the synthesis, as well as outlining how the synthesis is structured. This is particularly useful for complex reviews, such as those with multiple intervention types, multi-component interventions, large numbers of included studies, or methods other than meta-analysis for synthesising study data. These reviews may be more challenging for both authors and readers to navigate and keep track of key characteristics, and similarities and differences between studies.

While the 'Characteristics of included studies' table in Cochrane reviews provides comprehensive information about individual studies, it is too detailed to act as an easy reference, and is not organised into the same categories readers will find in the Results section (studies are listed alphabetically). The OSIS table provides an easy way to navigate such information.

What should be included in an OSIS table?

The key characteristics to include in an OSIS table will depend on the factors most important to each individual review. Priority should be given to characteristics that are central to the objectives of the review, that are important to understanding the synthesis, that are of high significance to the reader in understanding and applying the results in practice, or that vary importantly across studies.

Key study characteristics that should be considered for inclusion in the OSIS table are: study ID (name and date); location/country; study design; sample size; and categories of population or intervention that are used to structure the synthesis in the review (e.g. separate comparisons or subgroup analyses). Optionally, you may include the outcome(s) reported and/or included in the synthesis, the specific measurement tools used and timepoints measured.

The characteristics selected should not be so many that they cannot be readily displayed on a printed page. The OSIS table should be well formatted, easy to read and as succinct as possible. Characteristics that are consistent across all studies may not need to be included, as they can be easily summarised in text or in a footnote. For example, if all studies are of a single design it may not be useful to include study design in the OSIS table. Characteristics and information that are useful, but not central to the synthesis of the review, should be presented elsewhere such as in an additional table.

Several examples of different OSIS tables are shown in

Appendix 1: Example OSIS tables.

Should I include outcome data in an OSIS table?

It is unlikely to be helpful to include the results data for each outcome in the OSIS table, which is organised by study and not by outcome for synthesis. Instead, the results or outcome data for each study should be presented in the 'Effects of interventions' section, organised by outcome and synthesis. This approach promotes transparency by allowing direct comparisons between the text in the Results section and the corresponding data table and/or figure, often using direct links to provide an easy reference for readers seeking the data underpinning each reported outcome. Options for data presentation include a forest plots, data tables, and other plots, and are outlined in further detail in Chapter 12.3 of the Cochrane Handbook.

Examples of data tables and plots incorporating study characteristics are shown at Appendix 2: Examples of study characteristics incorporated into data tables and plots.

Should I include risk of bias assessments in an OSIS table?

Risk of bias is now most commonly assessed at the level of each individual result, rather than at the level of a study as a whole (e.g. using the RoB 2 or ROBINS-I tools). For this reason, especially where there is important variation in risk across studies and results, it may be more helpful to present information on the risk of bias directly alongside outcome data in the Results section. For example, risk of bias assessments can be incorporated into forest plots in RevMan, or incorporated into the appearance of results in a harvest or effect direction plots for reviews using vote counting based on the direction of effect.

In what order should I present studies in the OSIS table?

The order of studies in the OSIS table should allow easy reference for the reader. Studies may be presented alphabetically, but where they fall into categories that will be used to structure the synthesis and the text in the Results section (such as different geographic locations, intervention types and/or study designs), it will be more useful to readers to group studies using the same categories in the OSIS table. This will allow readers to easily identify the studies relevant to a particular synthesis reported in the text, tables or figures. OSIS table headings should clearly indicate how the studies have been ordered. For guidance about decisions about groupings of studies see the Chapter 9 of the Cochrane Handbook.

Appendix 1: Example OSIS tables

Table I: Example OSIS table illustrating key study characteristics, ordering studies based on intervention type

Study name (year) country of conduct	Study design	Other key detail of intervention	Population (sample size: Intervention/ Control)	Outcome domains with available data (synthesis method/metric)	Specific outcome measure	Time point of measurement	Method of synthesis
Intervention category*:* Education & financial incentive							
Doyle et al 2010 Germany	RCT	Tailored to individuals	Adults & children (aggregated) (n=253/245)	Mental health (MA); wellbeing (ED)	1.GHQ-12 2.HADS 3.self-reported 4. SF-36	6 months 12 months	1.MA 2.MA 3.Summary 4.MA
Thomson et al 2009 USA	CBA	Not tailored	Women (adult) (n=57/52)	Mental health (MA); respiratory health (MA)	1. HADS; 2. Asthma symptoms	12 months	1. MA 2. MA
Intervention category: Financial only incentive							
Brown et al 2012 UK	RCT	Not tailored	Adults (men & women) (n=126/128)	Respiratory health (Range)	Morning wheeze	2 months	Summary

MA: meta-analysis of standardised effect sizes. ED: Effect direction. Range: effect range

Table II: Example table illustrating components of multi-component interventions, sorted by comparator.

Study [1]	Comparator	Self-management intervention components							Outcome domain	Outcome measure	Time points (time frame)[2]
1	Attention control	BEH			MON	CON	SKL	NAV	Pain	Pain VAS	1 mth (short), 8 mths (long)
									Function	HAQ disability subscale	1 mth (short), 8 mths (long)
2	Acupuncture	BEH		EMO		CON	SKL	NAV	Pain	Pain on walking VAS	1 mth (short), 12 mths (long)
									Function	Dutch AIMS-SF	1 mth (short), 12 mths (long)
4	Information	BEH	ENG	EMO	MON	CON	SKL	NAV	Pain	Pain VAS	1 mth (short)
									Function	Dutch AIMS-SF	1 mth (short)
12	Information	BEH					SKL		Pain	WOMAC pain subscore	12 mths (long)
3	Usual care	BEH		EMO	MON		SKL	NAV	Pain	Pain VAS*	1 mth (short)
										Pain on walking VAS	1 mth (short)
5	Usual care	BEH	ENG	EMO	MON	CON	SKL		Pain	Pain on walking VAS	2 wks (short)

BEH = health-directed behaviour; CON = constructive attitudes and approaches; EMO = emotional well-being; ENG = positive and active engagement in life; MON = self-monitoring and insight; NAV = health service navigation; SKL = skill and technique acquisition.
ANCOVA = Analysis of covariance; CI = confidence interval; IQR = interquartile range; MD = mean difference; SD = standard deviation; SE = standard error.
Pain and function measures: Dutch AIMS-SF = Dutch short form of the Arthritis Impact Measurement Scales; HAQ = Health Assessment Questionnaire; VAS = visual analogue scale; WOMAC = Western Ontario and McMaster Universities Osteoarthritis Index.
[1]Ordered by type of comparator; [2]Short-term (denoted 'immediate' in the review Kroon et al (2014)) follow-up is defined as <6 weeks, long-term follow-up (denoted 'intermediate' in the review) is ≥6 weeks to 12 months. *Indicates the selected outcome when there was multiplicity in the outcome domain and time frame.

Source: Adapted from Table 9.3.b. McKenzie JE, Brennan SE, Ryan RE, Thomson HJ, Johnston RV. Chapter 9: Summarizing study characteristics and preparing for synthesis. In: Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA (editors). Cochrane Handbook for Systematic Reviews of Interventions version 6.3 (updated February 2022). Cochrane, 2022. Available from www.training.cochrane.org/handbook.

Table III: Example OSIS table illustrating key characteristics of studies, outcomes and synthesis, sorted alphabetically.

No	Study Country of conduct	Study type	Key detail of intervention	Population (sample size: intervention/control)[a]	Outcome domains with available data	Specific outcomes measure	Time point of measurement	Synthesis method
1	**Abdoulayi 2014** Malawi	C-RCT	Tailored to ultra-poor and labour-constrained households; 24-month intervention	Households (3531: 1678/1853)	1. Use of any health service* 2. Stunting* 3. Underweight 4. Disease or illness* 5. Food security* 6. Dietary diversity*	1. Sought treatment at public or private health facility in past two weeks 2. Is stunted 3. Is underweight 4. Had any illness or injury in past two weeks 5. Eats ≥ 1 meal/day 6. Child ate Vitamin A-rich foods in past day	24 months into the intervention	1. NEE 2. MA 3. NEE 4. NEE 5. MA 6. NEE
2	**Agüero 2007** South Africa	C	Tailored to children (0-36 months); up to 36-month intervention	Children (720: 245/475)	Stunting*	Current height for age	36 months into the intervention	NS
3	**Aizawa 2020** Kenya	C-RCT	Tailored to households; 24-month intervention	Households (3107: 1571/1536)	Dietary diversity*	Total consumption of energy, protein, carbohydrate, fat, fibre, Vitamin A, Vitamin B12, Vitamin C, folate, niacin, riboflavin, thiamine, iron, calcium, potassium.	24 months into the intervention	RE
4	**Akresh 2012** Burkina Faso	C-RCT	Tailored to children (0-59 months); 24-month intervention. 4 groups: (UCT to mother, UCT to father, CCT to mother, CCT to father)	Children (2559: 540 households in each intervention group/615 households in the control group; number of children in each condition unclear)	Use of any health service*	Number of routine health clinic visits, previous week	24 months into the intervention	NS

Source: Adapted from Pega F, Pabayo R, Benny C, Lee E-Y, Lhachimi SK, Liu SY. Unconditional cash transfers for reducing poverty and vulnerabilities: effect on use of health services and health outcomes in low- and middle-income countries. Cochrane Database of Systematic Reviews 2022, Issue 3. Art. No.: CD011135. DOI: 10.1002/14651858.CD011135.pub3.

Table IV: Example OSIS table illustrating key characteristics of studies, outcomes and analysis methods, sorted alphabetically.

Study	Study design	Overall risk of bias (study level)	Population category (healthy, at-risk)	Type of intervention (social media alone, multi-components)	Comparator	Outcome domains	Specific outcomes	If clustered, was clustering accounted for?
Ahmad 2020	RCT	Unclear	General	Multi-component	No intervention	Health behaviour Psychological health Well-being	Mindfulness Depression Quality of life	-
Baker 2011	RCT	High	Targeted	Multi-component	Non-social media	*not included in analysis	*not included in analysis	-
Bantum 2014	RCT	Unclear	Targeted	Social media only	Non-social media	Health behaviour Body function Psychological health Well-being	MVPA Diet quality Insomnia Depression	-
Booth 2018	ITS		General	Social media only	No intervention	Health behaviours	Outpatient mental health visits	-
Bull 2012	cRCT	High	General	Social media only	Active social media comparator	Health behaviour	Condom use	Yes
Cavalcanti 2019	RCT	HIgh	General	Multi-component	Non-social media	Health behaviours	Breastfeeding	-
Chai 2018	CBA	High	Targeted	Multi-component	No intervention	health behaviours	Smoking rate	-
Chen 2019	RCT	Unclear	Targeted	Social media only	Non-social media	Body function Well-being	HbA1c Quality of life	-
Cheung 2015	cRCT	High	Targeted	Multi-component	Non-social media	Health behaviours	Smoking relapse	We calculated using ICC 0.148

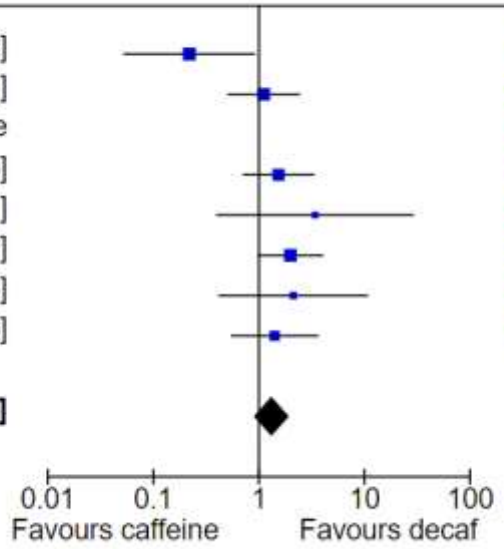
Source: Adapted from Petkovic J, Duench S, Trawin J, Dewidar O, Pardo Pardo J, Simeon R, DesMeules M, Gagnon D, Hatcher Roberts J, Hossain A, Pottie K, Rader T, Tugwell P, Yoganathan M, Presseau J, Welch V. Behavioural interventions delivered through interactive social media for health behaviour change, health outcomes, and health equity in the adult population. Cochrane Database of Systematic Reviews 2021, Issue 5. Art. No.: CD012932. DOI: 10.1002/14651858.CD012932.pub2. Accessed 30 November 2022.

Appendix 2: Examples of study characteristics incorporated into data tables and plots

Table V: Forest plot generated in RevMan Web incorporating information on risk of bias.

Study or Subgroup	Caffeine Events	Caffeine Total	Decaf Events	Decaf Total	Weight	Risk ratio M-H, Fixed, 95% CI
Amore-Coffea 2000	2	31	10	34	21.2%	0.22 [0.05 , 0.92]
Deliciozza 2004	10	40	9	40	20.0%	1.11 [0.51 , 2.44]
Kahve-Paradiso 2002	0	0	0	0		Not estimable
Mama-Kaffa 1999	12	53	9	61	18.6%	1.53 [0.70 , 3.35]
Morrocona 1998	3	15	1	17	2.1%	3.40 [0.39 , 29.31]
Norscafe 1998	19	68	9	64	20.7%	1.99 [0.97 , 4.07]
Oohlahlazza 1998	4	35	2	37	4.3%	2.11 [0.41 , 10.83]
Piazza-Allerta 2003	8	35	6	37	13.0%	1.41 [0.54 , 3.65]
Total (95% CI)		**277**		**290**	**100.0%**	**1.31 [0.92 , 1.87]**
Total events:	58		46			

Heterogeneity: Chi² = 8.66, df = 6 (P = 0.19); I² = 31%
Test for overall effect: Z = 1.51 (P = 0.13)
Test for subgroup differences: Not applicable



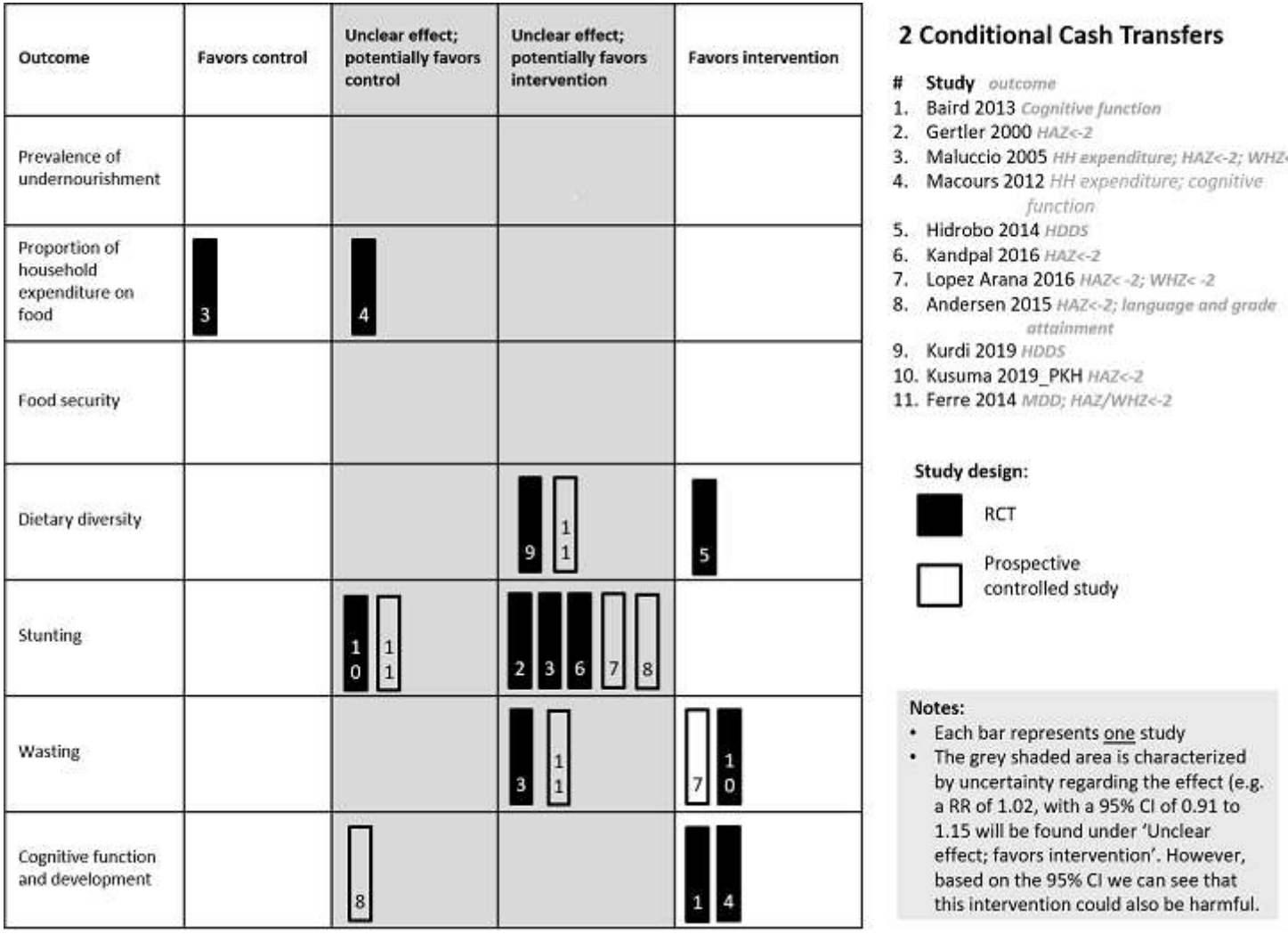
Risk of bias legend

(A) Random sequence generation (selection bias)
(B) Allocation concealment (selection bias)
(C) Blinding of participants and personnel (performance bias)
(D) Incomplete outcome data (attrition bias)
(E) Selective reporting (reporting bias)
(F) Other bias

Source: RevMan Web training template review. https://revman.cochrane.org, Note: Domains for risk of bias using current tools will differ from those shown here.

Table VI: Harvest plot incorporating information on precision and study design.

Note: This table indicates an option for display, but authors should seek guidance before applying vote counting based on direction of effect.



Source: Durao S, Visser ME, Ramokolo V, Oliveira JM, Schmidt B-M, Balakrishna Y, Brand A, Kristjansson E, Schoonees A. Community-level interventions for improving access to food in low- and middle-income countries. Cochrane Database of Systematic Reviews 2020, Issue 8. Art. No.: CD011504. DOI: 10.1002/14651858.CD011504.pub3.

Table VII: Effect direction plot presenting key study characteristics and outcome data using vote counting based on direction of effect, ordered by intervention grouping, study quality, risk of bias and date

Note: This table indicates an option for display, but authors should seek guidance before applying vote counting based on direction of effect.

Author Year	Study design	Risk of bias	Housing condition	Interv'n integrity	Final sample Int/Cont	Time since interv'n	General health	Respiratory	Mental	Illness/ symptoms
Intervention: Rehousing/retrofitting +/- neighbourhood renewal (post 1995)										
Kearns et al 2008 **	CBA	Low risk	▲	C	262/284	24 months	▲	▼	▲	▼
Thomson et al 2007	CBA	Low risk	▲	B	50/50	12 months	▲		▲	
Critchley et al 2004	CBA	Low risk	▲	B	~109/137	1-12 months	▼		▲	
Thomas et al 2005	CBA	Some concerns	▲	C	585/759	22 months			▼	
Barnes et al 2003	CBA	Some concerns	▲	C	45/45	18 months	▲		▲	▲
Evans et al 2002	CBA	Some concerns	▼	C	17/17	6-18 months	▲			▼
Blackman et al 2001 *	UBA	High risk	▲	C	166	5 years	▼	▼	▲	
Wells 2000	UBA	High risk	▲	B	23	2-3 years			▲	
Ambrose 1999	UBA	High risk	▲	C	227	4 years		▼	▲	▼
Halpern 1995	XUBA	High risk		C	27	10 months			▲	
Intervention: Provision of basic housing needs/low or middle income country intervention										
Spiegel et al 2003	XCBA	High risk	▲	C	896/807	1-4 years				
Aziz et al 1990 **,****	XCBA	High risk	▲	B	~>200/200	2-3 years				▲
Intervention: Rehousing from slums (pre 1965)										
Wilner et al 1960	CBA	Low risk	▲	B	1891/2893	<1 year			▲	▼
Chapin 1938	UBA	High risk	▼	B	171	8-19 months			▲	
McGonigle et al 1936 *,***	XCBA	High risk	▲	C	<152/289	5 years				▼

Effect direction: upward arrow= positive health impact, downward arrow= negative health impact.
Sample size: Final sample size (individuals) in intervention group Large arrow >300; medium arrow 50-300; small arrow <50
* data for children also available; ** children only; *** area level data not relating to study population alone, **** adults & children aggregated.

Source: Adapted from Thomson H, Thomas S, Sellstrom E, Petticrew M. Housing improvements for health and associated socio-economic outcomes. Cochrane Database of Systematic Reviews 2013, Issue 2. Art. No.: CD008657. DOI: 10.1002/14651858.CD008657.pub2.