Additional file 5. Detailed risk of bias assessment per outcome.

OUTCOME: CLINICAL PRACTICE - ASSESSMENT/EXAMINATION

Cluster randomized trials

Risk of bias domains

Study	D1	D1b	D2	D3	D4	D5	Overall
Brady, 2020	+	+	+	+	+	+	+
Charrier, 2008	+	+	+	+	+	+	+
Cheater, 2006	+	+	+	+	+	+	+
Curtis, 2011	+	+	+	X	+	+	X
Davies, 2002	+	+	+	+	+	+	+
Evans, 1997	+	+	+	+	+	+	+
Forberg, 2016	+	+	+	+	+	+	+
Francke, 1997	+	+	+	+	+	+	+
Funk, 2017	+	+	+	+	+	+	+
Hendryx, 1998	+	+	+	+	+	+	+
Koh, 2009	+	+	+	+	+	+	+
Kyriacos, 2019	-	+	+	+	+	+	-
Lim, 2020	X	+	+	+	+	+	X
Mäki-Turja-Rostedt, 2020	+	+	+	X	+	+	X
Manias, 2011	+	+	+	+	+	+	+
Marcantonio, 2010	-	+	+	+	+	+	-
Mazzuca, 1987	-	-	+	+	+	+	-
Middleton, 2011	+	+	+	+	+	+	+
Muller-Staub, 2008	+	+	+	+	+	+	+
Noome, 2017	-	-	+	X	+	+	X
Pagaiya, 2005	+	+	+	+	+	+	+
Smeland, 2022	+	+	+	+	+	+	+
van de Steeg, 2014	+	-	+	+	+	+	-
Yang, 2019	+	+	+	+	+	+	+
Yung, 2022	+	+	+	+	+	+	+

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
X High
- Some concerns
+ Low

Randomized controlled trials

Risk of bias domains

Study	D1	D2	D3	D4	D5	Overall
Elzeky, 2022	+	-	+	+	+	-
Ghazali, 2020	+	+	+	-	+	-
Jansson, 2014	+	+	+	+	+	+
Kim, 2022	-	-	+	+	+	-
Kroth, 2006	+	+	+	+	+	+
MacDonald, 2005	+	+	+	+	+	+
Murtaugh, 2005	+	-	+	-	+	-
Pauwels, 2018	+	+	+	-	+	-
Rankin, 2013	+	+	+	+	+	+
Rutherford-Hemming, 2016	+	+	+	+	+	+
Senarath, 2007	+	+	+	-	+	-
Snelgrove-Clarke, 2015	+	+	+	+	+	+

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
- Some concerns
+ Low

Non-randomized controlled studies

Risk of bias domains

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Ahmed, 2019	-	+	+	+	+	+	+	-
Alhalal, 2020	X	+	+	+	+	-	+	X
Boumans, 2005	-	+	+	+	-	+	+	-
Daly, 2009	Critical	-	+	+	+	-	+	Critical
deRond, 2000	-	+	+	+	+	-	+	-
Kinsman, 2021	-	+	+	-	-	+	+	-
Lacko, 1999	Critical	+	+	+	+	-	+	Critical
Magnan, 2008	Critical	+	?	+	?	-	+	Critical
Mancheril, 2021	+	+	-	+	-	+	-	-
Memon, 2022	-	+	-	+	-	+	-	-
Noordman, 2014	-	+	+	+	-	-	+	-
Rhew, 1999	Critical	+	+	+	Critical	+	+	Critical
Schondelmeyer, 2021	-	+	-	+	-	+	-	-
Seeley, 2008	Critical	?	+	+	?	-	+	Critical
Varghese, 2014	Critical	+	+	+	+	-	+	Critical

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
Critical
X Serious
- Moderate
+ Low
? No information

Additional file 5. Detailed risk of bias assessment per outcome.

OUTCOME: CLINICAL PRACTICE - COUNSELING/PROVISION OF ADVICE

Cluster randomized trials

Risk of bias domains

Study	D1	D1b	D2	D3	D4	D5	Overall
Antonini, 2021	+	+	+	+	X	+	X
Cheater, 2006	+	+	+	+	+	+	+
Davies, 2002	+	+	+	+	+	+	+
Evans, 1997	+	+	+	+	+	+	+
Francke, 1996	+	+	+	+	X	+	X
Galfin, 2011	+	-	+	+	+	+	-
Harrison, 2000	+	+	+	+	+	+	+
Jansink, 2013	+	+	+	X	+	+	X
Kaner, 2003	+	+	+	X	-	+	X
Lim, 2020	X	+	+	+	+	+	X
Magill, 2018	+	+	+	+	+	+	+
Mäki-Turja-Rostedt, 2020	+	+	+	X	+	+	X
Mazzuca, 1987	-	-	+	+	+	+	-
Nakatani, 2012	+	+	+	+	+	+	+
Noome, 2017	-	+	+	X	+	+	X
Parker, 2013	+	+	+	X	+	+	X
Sævareid, 2019	+	+	+	+	+	+	+
van Lieshout, 2016	+	+	+	+	+	+	+
Zohar, 2017	+	-	+	+	+	+	-

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement:
X High
- Some concerns
+ Low

Randomized controlled trials

Risk of bias domains

Study	D1	D2	D3	D4	D5	Overall
Bernburg, 2019	+	+	+	-	+	-
DeBarbieri, 2020	+	+	+	+	+	+
Delvaux, 2004	+	+	+	+	+	+
deRuijter, 2018	+	+	+	-	+	-
Dudener, 2023	+	-	+	-	-	X
Elahi, 2021	+	-	+	-	+	-
Karvinen, 2017	+	+	+	-	+	-
Kim, 2014	+	+	+	-	+	-
Khodadadi, 2013	X	X	+	-	-	X
Maruyama, 2022	+	X	+	+	-	X
Morita, 2009	+	+	-	-	+	-
Morita, 2014	+	+	+	-	+	-
Ogden, 1997	+	+	+	-	+	-
Omidi, 2020	+	X	+	-	+	X
Sarna, 2012	+	X	+	X	+	X
Tsai, 2011a	+	-	+	+	+	-
Tsai, 2011b	-	+	+	+	+	-
Wang, 2020	+	+	+	X	+	X
Wilkinson, 2008	+	+	+	+	+	+

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement:
X High
- Some concerns
+ Low

Non-randomized controlled studies

Risk of bias domains

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Ahmed, 2019	-	+	+	+	+	+	+	-
Bagherzadeh, 2021	-	+	-	+	+	-	+	-
Chenoweth, 2022	-	+	+	-	-	-	+	-
deRond, 2000	-	+	+	+	+	-	+	-
Filmer, 2020	-	+	+	+	X	-	+	X
Happ, 2014	-	+	+	+	+	+	+	-
Jo, 2015	!	+	+	+	+	-	+	!
Roelands, 2004	X	+	+	+	-	-	+	X

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement:
! Critical
X Serious
- Moderate
+ Low

Additional file 5. Detailed risk of bias assessment per outcome.

OUTCOME: CLINICAL PRACTICE - INFECTION CONTROL

Cluster randomized trials

Study	D1	D1b	D2	D3	D4	D5	Overall
Behzadi, 2019	+	+	+	X	+	+	X
Charrier, 2008	+	+	+	+	+	+	+
Donati, 2020	+	+	+	+	+	+	+
Forberg, 2016	+	+	+	+	+	+	+
Friese, 2019	+	+	+	-	+	+	-
Gomarverdi, 2019	+	+	+	+	+	+	+
Hödl, 2019	-	+	+	+	+	+	-
Hong, 1990	+	+	+	+	X	+	X
Huis, 2013	+	+	+	+	+	+	+
Passos, 2022	+	+	-	+	+	+	-
Seto, 1991	+	+	+	+	+	+	+
Teesing, 2020	+	+	+	+	+	+	+
van Gaal, 2011a	+	+	-	+	+	+	-
van Gaal, 2011b	+	+	-	+	+	+	-
von Lengerke, 2017	+	+	+	+	+	+	+

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
X High
- Some concerns
+ Low

Randomized controlled trials

Study	D1	D2	D3	D4	D5	Overall
Aloush, 2017	+	+	-	+	+	-
Bano, 2022	X	-	+	-	-	X
Carrico, 2007	+	X	+	+	+	X
Jansson, 2014	+	+	+	+	+	+
Jansson, 2016a	+	+	-	+	+	-
Jansson, 2016b	+	+	-	+	+	-
Jeihooni, 2018	+	+	+	X	+	X
Senarath, 2007	+	+	+	-	+	-
Wang, 2022	+	-	+	+	-	-
Wright, 1997	+	+	+	-	+	-

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
High
Some concerns
Low

Non-randomized controlled studies

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Ahmed, 2019	-	+	+	+	+	+	+	-
Akande, 2020	!	+	+	+	-	-	+	!
Bittner, 2002	X	+	+	+	+	-	+	X
Gould, 1997	!	+	+	-	X	-	+	!
Kim, 2007	!	-	+	+	+	+	+	!
O'Neil, 2016	+	+	+	+	+	+	+	+
Quintard, 2010	!	+	-	+	X	+	+	!
Sadeghi, 2018-1	!	+	+	+	-	+	+	!
Seto, 1989	!	+	+	+	+	-	+	!

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
Critical
Serious
Moderate
Low

Additional file 5. Detailed risk of bias assessment per outcome.

OUTCOME: CLINICAL PRACTICE - CARE COORDINATION

Cluster randomized trials

Risk of bias domains

Study	D1	D1b	D2	D3	D4	D5	Overall
Brady, 2020	+	+	+	+	+	+	+
Carroll, 2012	+	+	+	+	+	+	+
Cheater, 2006	+	+	+	+	+	+	+
Curtis, 2011	+	+	+	X	+	+	X
Evans, 1997	+	+	+	+	+	+	+
Fairall, 2005	+	+	+	+	+	+	+
Harrison, 2000	+	+	+	+	+	+	+
Jones, 1998	+	+	+	+	+	+	+
Liu, 2010	+	+	+	+	+	+	+
Marcantonio, 2010	-	+	+	+	+	+	-
Mazzuca, 1987	-	-	+	+	+	+	-
Nemati, 2022	+	+	-	+	+	+	-
Noome, 2017	-	-	+	X	+	+	X
Van Gaal, 2011a	+	+	-	+	+	+	-
Van Gaal, 2011b	+	+	-	+	+	+	-
Westbrook, 2017	+	+	+	+	+	+	+

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
X High
- Some concerns
+ Low

Randomized controlled trials

Risk of bias domains

Study	D1	D2	D3	D4	D5	Overall
Bruce, 2007	+	+	+	+	+	+
Feldman, 2004	-	-	-	-	X	X
Ogden, 1997	+	+	+	-	+	-
Omidi, 2020	+	X	+	-	+	X
Sarna, 2012	+	X	+	X	+	X
Senarath, 2007	+	+	+	-	+	-
Tsai, 2011b	-	+	+	+	+	-

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
X High
- Some concerns
+ Low

Non-randomized controlled studies

Risk of bias domains

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Akrami, 2019	!	-	+	+	+	-	+	!
Boumans, 2015	-	+	+	+	-	+	+	-
Park, 2021	-	-	-	+	-	-	-	-
Sayre, 2012	!	+	+	+	-	+	+	!
Seo, 2020	X	+	+	+	+	-	+	X

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
Critical
X Serious
- Moderate
+ Low

Additional file 5. Detailed risk of bias assessment per outcome.

OUTCOME: CLINICAL PRACTICE – DOCUMENTATION

Cluster randomized trials

Study	D1	D1b	D2	D3	D4	D5	Overall
Bucknall, 2022	+	+	+	+	+	+	+
Carroll, 2012	+	+	+	+	+	+	+
Charrier, 2008	+	+	+	+	+	+	+
Cheater, 2006	+	+	+	+	+	+	+
Collins, 2021	+	+	−	+	+	+	−
Cortez, 2016	+	+	+	+	+	+	+
Esche, 2015	+	+	+	−	+	+	−
Fakih, 2012	−	−	+	+	+	+	−
Happ, 2015	+	+	+	+	+	+	+
Johnston, 2007	+	+	+	−	+	+	−
Kyriacos, 2015	+	+	+	+	+	+	+
Lundgreen, 1999	−	−	+	+	+	+	−
Mäki-Turja-Rostedt, 2020	+	+	+	✕	+	+	✕
Muller-Staub, 2008	+	+	+	+	+	+	+
Noome, 2017	−	−	+	✕	+	+	✕
Reynolds, 2021	+	+	+	+	+	+	+
Sævareid. 2019	+	+	+	+	+	+	+
Tornvall, 2009	+	+	+	✕	+	+	✕
Wagner, 2005	−	−	+	+	+	+	−

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification
   and recruitment of Individual participants in
   relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
✕ High
− Some concerns
+ Low

Randomized controlled trials

Study	D1	D2	D3	D4	D5	Overall
deRuijter, 2018	+	+	+	+	+	+
Grommi, 2021	+	−	+	+	−	−
MacDonald, 2005	+	+	+	+	+	+

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
− Some concerns
+ Low

Non-randomized controlled studies

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Boumans, 2005	−	+	+	+	−	+	+	−
Cone, 1996	!	+	+	+	+	+	+	!
deRond, 2000	−	+	+	+	+	−	+	−
Kinsman, 2021	−	+	+	−	−	+	+	−
Oniki, 2003	!	?	+	+	?	+	+	!
Varghese, 2014	!	+	+	+	−	+	+	!

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
! Critical
− Moderate
+ Low
? No information

Additional file 5. Detailed risk of bias assessment per outcome.

OUTCOME: CLINICAL PRACTICE - MEDICATION ADMINISTRATION

Cluster randomized trials

Study	D1	D1b	D2	D3	D4	D5	Overall
Charrier, 2008	+	+	+	+	+	+	+
Hasnain, 2019	+	+	+	+	+	+	+
Hasselblad, 2022	+	−	+	+	+	+	−
Hendryx, 1998	+	+	+	+	+	+	+
Hutchinson, 2020	+	+	+	+	+	+	+
Johnson, 2019	+	+	+	+	+	+	+
Johnston, 2007	+	+	+	−	+	+	−
Lau, 2017	+	+	+	+	+	+	+
Pitkälä, 2014	+	+	−	+	+	+	−
Rantz, 2001	+	+	+	✖	+	+	✖
Titler, 2009	+	+	+	+	+	+	+
Walsh, 2016	+	+	+	+	+	+	+

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
✖ High
− Some concerns
+ Low

Randomized controlled trials

Study	D1	D2	D3	D4	D5	Overall
Schneider, 2006	+	+	+	+	+	+
Srikrajang, 2005	+	✖	+	✖	+	✖
Vicdan, 2019	+	+	+	+	+	+
Zhu, 2022	−	−	+	+	+	−

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
✖ High
− Some concerns
+ Low

Non-randomized controlled studies

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Daly, 2009	!	−	+	+	−	−	+	!
deRond, 2000	−	+	+	+	−	−	+	−
Edwards, 2007	!	+	+	+	+	+	+	!
Rothschild, 2005	!	+	+	+	+	+	+	!
Sung, 2008	✖	+	+	+	+	−	+	✖
Ziyaeifard, 2018	!	+	?	+	+	−	+	!

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
! Critical
✖ Serious
− Moderate
+ Low
? No information

OUTCOME: CLINICAL PRACTICE - SYMPTOM MANAGEMENT

Cluster randomized trials

Study	D1	D1b	D2	D3	D4	D5	Overall
Chan, 2013	+	+	+	✖	✖	+	✖
Chen, 2016	+	+	+	✖	+	+	✖
Francke, 1996	+	+	+	✖	+	+	✖
Johnston, 2007	+	+	+	−	+	+	−
Kalinowski, 2015	+	+	+	+	+	+	+
Manias, 2011	+	+	+	+	+	+	+
Marcantonio, 2010	−	+	+	+	+	+	−

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
✖ High
− Some concerns
+ Low

Randomized controlled trials

Study	D1	D2	D3	D4	D5	Overall
Arzani, 2020	+	+	+	−	✖	✖
Gao, 2022	−	−	+	−	−	✖
Omidi, 2020	+	✖	+	−	+	✖

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
✖ High
− Some concerns
+ Low

Non-randomized controlled studies

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Hessig, 2004	!	+	+	+	−	−	+	!
Jo, 2015	!	+	+	+	+	−	+	!
Lin, 2008	!	+	+	+	+	−	+	!
Michaels, 2007	!	+	+	+	?	−	+	!

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
! Critical
− Moderate
+ Low
? No information

Additional file 5. Detailed risk of bias assessment per outcome.

OUTCOME: CLINICAL PRACTICE - TESTING/SCREENING

Cluster randomized trials

Risk of bias domains

Study	D1	D1b	D2	D3	D4	D5	Overall
Brennan, 2022	+	+	+	+	+	+	+
Chambers, 2022	+	-	+	+	+	+	-
Collins, 2021	+	+	-	+	+	+	-
Fairall, 2005	+	+	+	+	+	+	+
Gengiah, 2021	+	+	+	+	+	+	+
Hendryx, 1998	+	+	+	+	+	+	+
Pagaiya, 2005	+	+	+	+	+	+	+
Weaver, 2016	+	-	+	+	+	+	-
Wood, 2021	-	+	-	-	+	+	X
Zarifsanaiey, 2022	+	+	-	+	+	+	-

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
X High
- Some concerns
+ Low

Randomized controlled trials

Risk of bias domains

Study	D1	D2	D3	D4	D5	Overall
O'Neill, 1999	+	+	+	+	+	+
Segal, 2015	+	-	+	+	+	-
Srikrajang, 2005	+	X	+	X	+	X

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
X High
- Some concerns
+ Low

Non-randomized controlled studies

Risk of bias domains

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Fabre, 2020	X	+	+	+	+	+	+	X
Locke, 2011	!	+	+	+	-	+	+	!

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
● Critical
X Serious
- Moderate
+ Low

OUTCOME: CLINICAL PRACTICE - PHYSICAL RESTRAINT

Cluster randomized trials

Risk of bias domains

Study	D1	D1b	D2	D3	D4	D5	Overall
Abraham, 2019	+	+	+	+	+	+	+
Chang, 2016	+	+	+	+	+	+	+
Happ, 2015	+	+	+	+	+	+	+
Huang, 2009	+	+	+	X	X	+	X
Huizing, 2006	+	+	-	+	+	+	-
Huizing, 2009	+	+	-	+	+	+	-
Köpke, 2012	+	+	+	+	+	+	+
Rantz, 2001	+	+	+	X	+	+	X
Välimäki, 2022	+	+	+	+	+	+	+

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
X High
- Some concerns
+ Low

Randomized controlled trials

Risk of bias domains

Study	D1	D2	D3	D4	D5	Overall
Kavak, 2019	+	+	-	+	+	-

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
- Some concerns
+ Low

Non-randomized controlled studies
N/A

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Additional file 5. Detailed risk of bias assessment per outcome.

OUTCOME: CLINICAL PRACTICE - EQUIPMENT MANAGEMENT

Cluster randomized trials

Study	D1	D1b	D2	D3	D4	D5	Overall
Blanco-Mavillard, 2021	+	-	+	+	+	+	-
Fakih, 2012	-	-	+	+	+	+	-
Lundgreen, 1999	-	-	+	+	+	+	-
Meyer, 2003	+	+	+	+	+	+	+
Wald, 2014	-	+	+	+	+	+	-

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
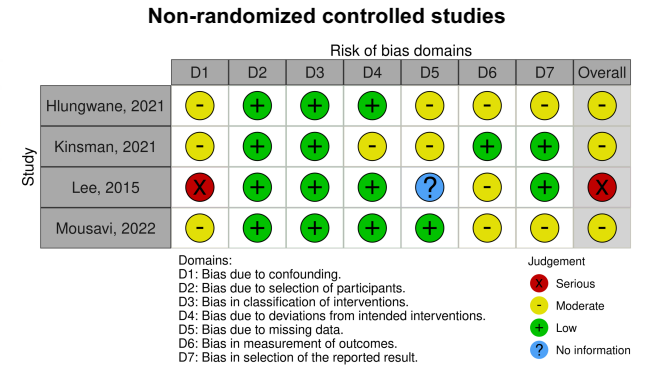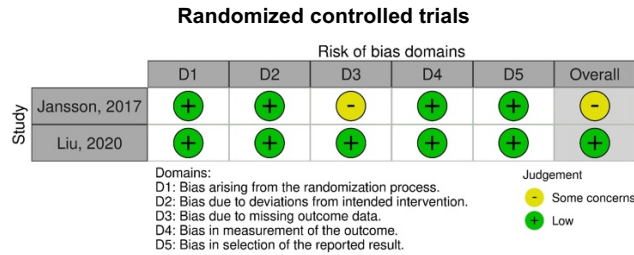D5 : Bias in selection of the reported result.

Judgement
- Some concerns
+ Low

Randomized controlled trials

Study	D1	D2	D3	D4	D5	Overall
Jansson, 2017	+	+	-	+	+	-
Liu, 2020	+	+	+	+	+	+

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
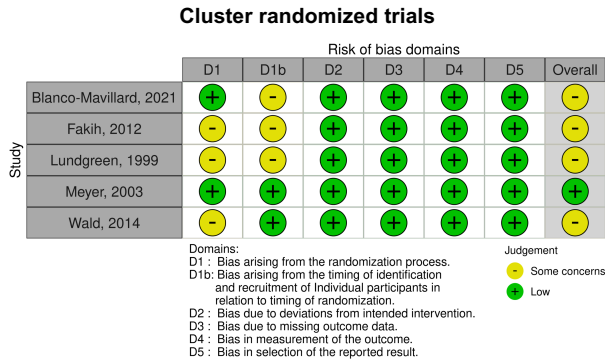D5: Bias in selection of the reported result.

Judgement
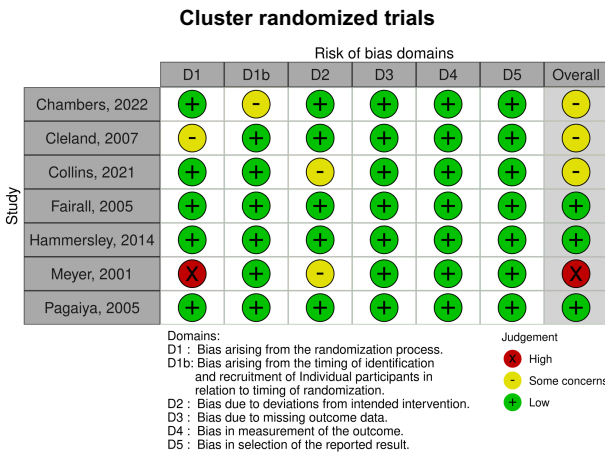- Some concerns
+ Low

Non-randomized controlled studies

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Hlungwane, 2021	-	+	+	-	-	-	-	-
Kinsman, 2021	-	+	+	-	-	+	+	-
Lee, 2015	X	+	+	+	?	-	+	X
Mousavi, 2022	-	+	+	+	+	-	-	-

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
X Serious
- Moderate
+ Low
? No information

OUTCOME: CLINICAL PRACTICE – PRESCRIPTION

Cluster randomized trials

Study	D1	D1b	D2	D3	D4	D5	Overall
Chambers, 2022	+	-	+	+	+	+	-
Cleland, 2007	-	+	+	+	+	+	-
Collins, 2021	+	+	-	+	+	+	-
Fairall, 2005	+	+	+	+	+	+	+
Hammersley, 2014	+	+	+	+	+	+	+
Meyer, 2001	X	+	-	+	+	+	X
Pagaiya, 2005	+	+	+	+	+	+	+

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
X High
- Some concerns
+ Low

Randomized controlled trials
N/A

Non-randomized controlled studies
N/A

Additional file 5. Detailed risk of bias assessment per outcome.

OUTCOME: CLINICAL PRACTICE – IMMUNIZATION

Cluster randomized trials

Study	D1	D1b	D2	D3	D4	D5	Overall
Berry, 2022	+	+	+	+	+	+	+

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
+ Low

Randomized controlled trials

Study	D1	D2	D3	D4	D5	Overall
Shevlin, 2002	+	+	+	+	+	+

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
+ Low

Non-randomized controlled studies

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Nowalk, 2005	!	+	+	+	?	+	+	!
Rhew, 1999	!	+	+	+	!	+	+	!

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
! Critical
+ Low
? No information

OUTCOME: CLINICAL PRACTICE - INCIDENT REPORTING

Cluster randomized trials

Study	D1	D1b	D2	D3	D4	D5	Overall
Teresi, 2013	+	+	+	+	+	+	+

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
+ Low

Randomized controlled trials
N/A

Non-randomized controlled studies

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Evans, 2007	-	+	+	+	+	+	+	-

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
- Moderate
+ Low

OUTCOME: CLINICAL PRACTICE - OTHER

Cluster randomized trials

Study	D1	D1b	D2	D3	D4	D5	Overall
Emamgholi, 2020	X	+	+	-	+	+	X

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
X High
- Some concerns
+ Low

Randomized controlled trials
N/A

Non-randomized controlled studies
N/A

Additional file 5. Detailed risk of bias assessment per outcome.

OUTCOME: PATIENT HEALTH & WELL-BEING

Cluster randomized trials

Risk of bias domains

Study	D1	D1b	D2	D3	D4	D5	Overall
Abraham, 2019	+	+	+	+	+	+	+
Blanco-Mavillard, 2021	+	−	+	+	+	+	−
Brennan, 2022	+	+	+	+	+	+	+
Bucknall, 2022	+	+	+	+	+	+	+
Chambers, 2022	+	−	+	+	+	+	−
Cheater, 2006	+	+	+	+	+	+	+
Chen, 2016	+	+	+	X	+	+	X
Cleland, 2007	−	+	+	+	+	+	−
Collins, 2021	+	+	−	+	+	+	−
Cortez, 2016	+	+	+	+	+	+	+
Curtis, 2011	+	+	+	X	+	+	X
Forberg, 2016	+	+	+	+	+	+	+
Funk, 2017	+	+	+	+	+	+	+
Galfin, 2011	+	−	+	+	+	+	−
Hammersley, 2014	+	+	+	+	+	+	+
Happ, 2015	+	+	+	+	+	+	+
Hasselblad, 2022	+	−	+	−	+	+	−
Hendryx, 1998	+	+	+	+	+	+	+
Hödl, 2019	+	−	+	+	+	+	−
Koh, 2009	+	+	+	+	+	+	+
Köpke, 2012	+	+	+	+	+	+	+
Kyriacos, 2019	−	+	+	+	+	+	−
Lundgree, 1999	−	−	+	+	+	+	−
Manias, 2011	+	+	+	+	+	+	+
Marcantonio, 2010	−	+	+	+	+	+	−
Meyer, 2003	+	+	+	−	+	+	−
Middleton, 2011	+	+	+	+	+	+	+
Pitkälä, 2014	+	+	−	+	+	+	−
Rantz, 2001	+	+	+	X	+	+	X
Reynolds, 2021	+	+	+	+	+	+	+
Välimäki, 2022	+	+	+	+	+	+	+
van Lieshout, 2016	+	+	+	+	+	+	+
van de Steeg, 2014	+	−	+	+	+	+	−
Wagner, 2005	−	−	+	+	+	+	−
Wald, 2014	−	+	+	+	+	+	−
Walsh, 2016	+	+	+	+	+	+	+

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
X High
− Some concerns
+ Low

Randomized controlled trials

Risk of bias domains

Study	D1	D2	D3	D4	D5	Overall
DeBarbieri, 2020	+	+	+	+	+	+
Gao, 2022	−	−	+	−	−	X
Senarath, 2007	+	+	+	+	+	+
Wilkinson, 2008	+	+	+	+	+	+

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
X High
− Some concerns
+ Low

Non-randomized controlled studies

Risk of bias domains

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Boumans, 2005	−	+	+	+	−	+	+	−
Chenoweth, 2022	−	+	+	−	−	−	+	−
Lee, 2015	X	+	+	+	?	+	+	X
Mancheril, 2021	+	+	−	+	−	−	−	−
O'Neil, 2016	+	+	+	+	+	+	+	+
Park, 2021	−	−	+	−	−	−	−	−
Ziyaeifard, 2018	!	+	?	+	+	−	+	!

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
! Critical
X Serious
− Moderate
+ Low
? No information

Additional file 5. Detailed risk of bias assessment per outcome.

OUTCOME: INTENTION

Cluster randomized trials

Study		Risk of bias domains						
	D1	D1b	D2	D3	D4	D5	Overall
Chan, 2013	+	+	+	✕	✕	+	✕

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
✕ High
+ Low

Randomized controlled trials

Study	Risk of bias domains					
	D1	D2	D3	D4	D5	Overall
deRuijter, 2018	+	+	+	-	+	-
Morita, 2014	+	+	+	-	+	-

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
- Some concerns
+ Low

Non-randomized controlled studies

Study	Risk of bias domains							
	D1	D2	D3	D4	D5	D6	D7	Overall
Edwards, 2007	!	+	+	+	+	-	+	!

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
● Critical
- Moderate
+ Low

OUTCOME: ATTITUDE

Cluster randomized trials

Study		Risk of bias domains						
	D1	D1b	D2	D3	D4	D5	Overall
Chan, 2013	+	+	+	✕	✕	+	✕
Francke, 1996	+	+	+	+	✕	+	✕
Friese, 2019	+	+	+	-	+	+	-
Happ, 2015	+	+	+	+	✕	+	✕
Harrison, 2000	+	+	+	+	+	+	+
Hasnain, 2019	+	+	+	+	✕	+	✕
Huang, 2009	+	+	+	✕	✕	+	✕
Lim, 2020	✕	+	+	+	+	+	✕
Reynolds, 2021	+	+	+	+	+	+	+
Smeland, 2022	+	+	+	+	+	+	+
Yang, 2019	+	+	+	+	✕	+	✕
Yun, 2022	+	+	+	+	+	+	+
Zarifsanaiey, 2022	+	+	-	+	+	+	-

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
✕ High
- Some concerns
+ Low

Randomized controlled trials

Study	Risk of bias domains					
	D1	D2	D3	D4	D5	Overall
Arzani, 2020	+	+	+	-	✕	✕
Delvaux, 2004	+	+	+	+	+	+
deRuijter, 2018	+	+	+	-	+	-
Dudener, 2023	+	-	+	-	-	✕
Jeihooni, 2018	+	+	+	✕	+	✕
Karvinen, 2017	+	+	+	-	+	-
Kavak, 2019	+	+	-	+	+	-
Kim, 2014	+	+	+	-	+	-
Morita, 2009	+	+	-	-	+	-
Morita, 2014	+	+	+	-	+	-
Ogden, 1997	+	+	+	-	+	-
Omidi, 2020	+	✕	+	-	+	✕
Vicdan, 2019	+	+	+	+	+	+
Woodcock, 1999	+	-	+	✕	+	✕

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
✕ High
- Some concerns
+ Low

Non-randomized controlled studies

Study	Risk of bias domains							
	D1	D2	D3	D4	D5	D6	D7	Overall
Alhalal, 2020	✕	+	+	+	+	-	+	✕
Bagherzadeh, 2021	-	+	-	+	+	-	+	-
Edwards, 2007	!	+	+	+	+	-	+	!
Filmer, 2020	-	+	+	✕	-	-	+	✕
Hessig, 2004	!	+	+	-	-	-	+	!
Jo, 2015	!	+	+	+	+	-	+	!
Lin, 2008	!	+	+	+	-	-	+	!
Locke, 2011	!	+	+	+	-	-	+	!
Roelands, 2004	✕	+	+	-	-	-	+	✕
Sadeghi, 2018-1	!	+	+	-	+	+	+	!
Seo, 2020	✕	+	+	-	-	-	+	✕

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
● Critical
✕ Serious
- Moderate
+ Low

Additional file 5. Detailed risk of bias assessment per outcome.

OUTCOME: KNOWLEDGE

Cluster randomized trials

Risk of bias domains

Study	D1	D1b	D2	D3	D4	D5	Overall
Chang, 2016	+	+	+	+	+	+	+
Esche, 2015	+	+	+	X	+	+	X
Friese, 2019	+	+	+	−	+	+	−
Funk, 2017	+	+	+	+	+	+	+
Gomarverdi, 2019	+	+	+	+	+	+	+
Happ, 2015	+	+	+	+	+	+	+
Hong, 1990	+	+	+	+	+	+	+
Huang, 2009	+	+	+	X	+	+	X
Johnston, 2007	+	+	+	−	+	+	−
Jones, 1998	+	+	+	+	+	+	+
Koh, 2009	+	+	+	+	+	+	+
Kyriacos, 2015	+	+	+	+	+	+	+
Lim, 2020	X	+	+	+	+	+	X
Liu, 2010	+	+	+	X	+	+	+
Noome, 2017	−	−	+	X	+	+	X
Passos, 2022	+	+	−	+	+	+	−
Reynolds, 2021	+	+	+	X	+	+	+
Walsh, 2016	+	+	+	+	+	+	+
Weaver, 2016	+	+	−	+	+	+	−
Yang, 2019	+	+	+	+	X	+	X
Yun, 2022	+	+	+	+	+	+	+
Zarifsanaiey, 2022	+	+	−	+	+	+	−

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
X High
− Some concerns
+ Low

Randomized controlled trials

Risk of bias domains

Study	D1	D2	D3	D4	D5	Overall
Bano, 2022	X	−	+	−	−	X
Carrico, 2007	+	X	+	+	+	X
Day, 2001	−	+	+	+	+	−
deRuijter, 2018	+	+	+	−	+	−
Elzeky, 2022	+	−	+	+	+	−
Grommi, 2021	+	−	+	+	−	−
Jansson, 2014	+	+	+	−	+	−
Jansson, 2016b	+	+	−	+	+	−
Jansson, 2017	+	+	−	+	+	−
Jeihooni, 2018	+	+	+	X	+	X
Karvinen, 2017	+	+	+	+	+	+
Kavak, 2019	+	+	+	+	+	+
Kim, 2014	+	+	+	+	+	+
Kim, 2022	−	−	+	+	+	−
Maruyama, 2022	+	X	+	+	−	X
Morita, 2014	+	+	+	−	+	−
Ogden, 1997	+	+	+	−	+	−
Omidi, 2020	+	X	+	−	+	X
Rutherford-Hemming, 2016	+	+	+	+	+	+
Tsai, 2011a	+	−	+	+	+	−
Tsai, 2011b	−	+	+	+	+	−
Vicdan, 2019	+	+	+	+	+	+
Zhu, 2022	X	−	+	+	+	X

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
X High
− Some concerns
+ Low

Non-randomized controlled studies

Risk of bias domains

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Akande, 2020	!	+	+	+	−	−	+	!
Alhalal, 2020	X	+	+	+	−	+	+	X
Filmer, 2020	−	+	+	+	X	−	+	X
Hessig, 2004	!	+	+	+	−	−	+	!
Hlungwane, 2021	−	+	+	+	−	−	−	−
Lin, 2008	!	+	+	+	+	+	+	!
Memon, 2022	−	+	−	+	−	−	+	−
Mousavi, 2022	−	+	+	+	−	−	−	−
Park, 2021	−	−	−	+	−	−	−	−
Sadeghi, 2018-1	!	+	+	+	−	+	+	!
Seeley, 2008	!	?	+	+	?	−	+	!
Seo, 2020	X	+	+	+	+	−	+	X
Sung, 2008	X	+	+	+	+	−	+	X
Varghese, 2014	!	−	+	+	+	−	+	!

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
● Critical
X Serious
− Moderate
+ Low
? No information

Additional file 5. Detailed risk of bias assessment per outcome.

OUTCOME: PERCEIVED CONTROL

Cluster randomized trials

Study	D1	D1b	D2	D3	D4	D5	Overall
Chan, 2013	+	+	+	✗	✗	+	✗
Galfin, 2011	+	−	+	+	+	+	−
Hasselblad, 2022	+	−	+	−	+	+	−
Liu, 2010	+	+	+	+	+	+	+
Parker, 2013	+	+	+	✗	+	+	✗
Yun, 2022	+	+	−	+	+	+	−

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
✗ High
− Some concerns
+ Low

Randomized controlled trials

Study	D1	D2	D3	D4	D5	Overall
Bernburg, 2019	+	+	+	−	+	−
deRuijter, 2018	+	+	+	−	+	−
Jeihooni, 2018	+	+	+	✗	+	✗
Karvinen, 2017	+	+	+	−	+	−
Khodadadi, 2013	✗	✗	+	−	−	✗
Kim, 2022	−	−	+	+	+	−
Morita, 2009	+	+	−	−	+	−
Morita, 2014	+	+	+	−	+	−
Ogden, 1997	+	+	+	−	+	−
Segal, 2015	+	−	✗	+	+	✗
Tsai, 2011a	+	−	+	+	+	−
Wilkinson, 2008	+	+	+	✗	+	✗
Woodcock, 1999	+	−	+	✗	+	✗

Domains
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
✗ High
− Some concerns
+ Low

Non-randomized controlled studies

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Alhalal, 2020	✗	+	+	+	−	−	+	✗
Edwards, 2007	!	+	+	+	+	−	+	!
Roelands, 2004	✗	+	+	+	−	−	+	✗
Sadeghi, 2018-1	!	+	+	+	−	+	+	!
Sung, 2008	✗	+	+	+	+	−	+	✗

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
● Critical
✗ Serious
− Moderate
+ Low

Additional file 5. Detailed risk of bias assessment per outcome.

OUTCOME: SOCIAL NORMS

Cluster randomized trials

Risk of bias domains

Study	D1	D2	D3	D4	D5	Overall
deRuijter, 2018	+	+	+	-	+	-

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
- Some concerns
+ Low

Randomized controlled trials

Risk of bias domains

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Edwards, 2007	!	+	+	+	+	-	+	!
Roelands, 2004	X	+	+	+	-	-	+	X

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
! Critical
X Serious
- Moderate
+ Low

Non-randomized controlled studies

Risk of bias domains

Study	D1	D1b	D2	D3	D4	D5	Overall
Emamgholi, 2020	-	+	+	+	+	+	-
Hasnain, 2019	+	+	+	+	+	+	+
Jansink, 2013	+	+	+	X	+	+	X
Lim, 2020	X	+	+	+	+	+	X

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
X High
- Some concerns
+ Low

OUTCOME: SKILLS

Cluster randomized trials

Risk of bias domains

Study	D1	D1b	D2	D3	D4	D5	Overall
Emamgholi, 2020	-	+	+	+	+	+	-
Hasnain, 2019	+	+	+	+	+	+	+
Jansink, 2013	+	+	+	X	+	+	X
Lim, 2020	X	+	+	+	+	+	X

Domains:
D1 : Bias arising from the randomization process.
D1b: Bias arising from the timing of identification and recruitment of Individual participants in relation to timing of randomization.
D2 : Bias due to deviations from intended intervention.
D3 : Bias due to missing outcome data.
D4 : Bias in measurement of the outcome.
D5 : Bias in selection of the reported result.

Judgement
X High
- Some concerns
+ Low

Randomized controlled trials

Risk of bias domains

Study	D1	D2	D3	D4	D5	Overall
Day, 2001	-	+	+	+	+	-
Khodadadi, 2013	X	X	+	-	-	X
Kim, 2022	-	-	+	+	+	-
Ghazali, 2020	+	+	+	-	+	-
Wang, 2022	+	-	+	+	-	-
Zhu, 2022	-	-	+	+	+	-

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
X High
- Some concerns
+ Low

Non-randomized controlled studies

Risk of bias domains

Study	D1	D2	D3	D4	D5	D6	D7	Overall
Noordman, 2014	-	+	+	+	-	-	+	-
Seeley, 2008	!	?	+	+	?	-	+	!

Domains:
D1: Bias due to confounding.
D2: Bias due to selection of participants.
D3: Bias in classification of interventions.
D4: Bias due to deviations from intended interventions.
D5: Bias due to missing data.
D6: Bias in measurement of outcomes.
D7: Bias in selection of the reported result.

Judgement
! Critical
- Moderate
+ Low
? No information