

Supplement 1. Pubmed search terms (August 3, 2017)

((((((((((("Meta-Analysis"[Publication Type] OR "Meta-Analysis as Topic"[Mesh] OR "Network Meta-Analysis"[Mesh] OR "Meta Analysis"[Title/Abstract] OR Metaanalysis[Title/Abstract] OR Meta-analysis[Title/Abstract] OR "Meta Analytic Review"[Title/Abstract] OR Metaanalyses[Title/Abstract] OR Meta-analyses[Title/Abstract]))) AND ("2006"[Date - Publication] : "3000"[Date - Publication])) AND ((treatment*[Title/Abstract] OR intervention*[Title/Abstract] OR program*[Title/Abstract] OR technique*[Title/Abstract] OR therap*[Title/Abstract] OR strateg*[Title/Abstract]))) AND ((accept*[Title/Abstract] OR achievement[Title/Abstract] OR affect[Title/Abstract] OR "affect regulation"[Title/Abstract] OR agency[Title/Abstract] OR anger[Title/Abstract] OR anxiety[Title/Abstract] OR arousal[Title/Abstract] OR attention[Title/Abstract] OR autonomic[Title/Abstract] OR avoidance[Title/Abstract] OR "behavior regulation"[Title/Abstract] OR "behaviour regulation"[Title/Abstract] OR "behavioral regulation"[Title/Abstract] OR "behavioural regulation"[Title/Abstract] OR "body awareness"[Title/Abstract] OR cogniti*[Title/Abstract] OR compassion[Title/Abstract] OR concentration[Title/Abstract] OR "conflict monitoring"[Title/Abstract] OR coping[Title/Abstract] OR decentering[Title/Abstract] OR de-centering[Title/Abstract] OR "decision making"[Title/Abstract] OR decision-making[Title/Abstract] OR "delay discounting"[Title/Abstract] OR depression[Title/Abstract] OR detach*[Title/Abstract] OR discrimination[Title/Abstract] OR dis-identification[Title/Abstract] OR distraction[Title/Abstract] OR "distress tolerance"[Title/Abstract] OR "distress toleration"[Title/Abstract] OR dissociati*[Title/Abstract] OR "dot probe"[Title/Abstract] OR ego[Title/Abstract] OR embodiment[Title/Abstract] OR emotion*[Title/Abstract] OR "emotion regulation"[Title/Abstract] OR empath*[Title/Abstract] OR equanimity[Title/Abstract] OR "executive function"[Title/Abstract] OR "experiential avoidance"[Title/Abstract] OR fear[Title/Abstract] OR "future orientation"[Title/Abstract] OR "goal setting"[Title/Abstract] OR habit*[Title/Abstract] OR "identity"[Title/Abstract] OR impulsiv*[Title/Abstract] OR kindness[Title/Abstract] OR memory[Title/Abstract] OR meta-awareness[Title/Abstract] OR metacogniti*[Title/Abstract] OR meta-cogniti*[Title/Abstract] OR "mind wandering"[Title/Abstract] OR motivation[Title/Abstract] OR neuroticism[Title/Abstract] OR nonattachment[Title/Abstract] OR non-attachment[Title/Abstract] OR nonjudgment[Title/Abstract] OR non-judgment[Title/Abstract] OR nonreactivity[Title/Abstract] OR non-reactivity[Title/Abstract] OR orienting[Title/Abstract] OR perspective*[Title/Abstract] OR "positive psychology"[Title/Abstract] OR "problem solve"[Title/Abstract] OR "problem solving"[Title/Abstract] OR prosocial[Title/Abstract] OR "psychological distance"[Title/Abstract] OR "psychological flexibility"[Title/Abstract] OR reapprais*[Title/Abstract] OR reconsolidation[Title/Abstract] OR re-perceiving[Title/Abstract] OR re-perceiving[Title/Abstract] OR resilience[Title/Abstract] OR "resource depletion"[Title/Abstract] OR reward[Title/Abstract] OR ruminat*[Title/Abstract] OR "Self-Control"[Mesh] OR "self-control"[Title/Abstract] OR "self control"[Title/Abstract] OR self-monitor*[Title/Abstract] OR self-regulat*[Title/Abstract] OR "self regulation"[Title/Abstract] OR worry[Title/Abstract] OR "selective stopping"[Title/Abstract] OR "stimulus prioritization"[Title/Abstract] OR "stop signal"[Title/Abstract] OR stress[Title/Abstract] OR stroop[Title/Abstract] OR "Sustained Attention to Response Task"[Title/Abstract] OR sympathetic[Title/Abstract] OR top-down[Title/Abstract] OR "task switching"[Title/Abstract] OR threat[Title/Abstract] OR vigilance[Title/Abstract]))) AND (("Behavior and Behavior Mechanisms"[Mesh] OR "Health Behavior"[Mesh] OR "health behavior"[Title/Abstract] OR "health behavior"[Title/Abstract] OR "behavior change"[Title/Abstract] OR "behaviour change"[Title/Abstract] OR "behavioral

health"[Title/Abstract] OR "behavioural health"[Title/Abstract] OR "Healthy Lifestyle"[Mesh] OR diet[Title/Abstract] OR nutrition[Title/Abstract] OR "physical activity"[Title/Abstract] OR exercise[Title/Abstract] OR fitness[Title/Abstract] OR yoga[Title/Abstract] OR meditation[Title/Abstract] OR mindfulness[Title/Abstract] OR "Mind-Body Therapies"[Mesh] OR anxiety[Title/Abstract] OR "Anxiety"[Mesh] OR "Anxiety Disorders"[Mesh] OR depression[Title/Abstract] OR "Depression"[Mesh] OR "Depressive Disorder"[Mesh] OR stress[Title/Abstract] OR "Mental Health"[Mesh] OR "mental wellbeing"[Title/Abstract] OR "mental well being"[Title/Abstract] OR "mental well-being"[Title/Abstract] OR "Stress, Psychological"[Mesh] OR "Resilience, Psychological"[Mesh] OR resilience[Title/Abstract] OR "Adaptation, Psychological"[Mesh] OR coping[Title/Abstract] OR "Sleep"[Mesh] OR sleep[Title/Abstract] OR "Fatigue"[Mesh] OR fatigue[Title/Abstract] OR "substance abuse"[Title/Abstract] OR "substance use disorder"[Title/Abstract] OR "drug abuse" OR "alcohol abuse"[Title/Abstract] OR "drug dependence"[Title/Abstract] OR "alcohol dependence"[Title/Abstract] OR "Smoking Cessation"[Mesh] OR smoking[Title/Abstract] OR tobacco[Title/Abstract] OR cigarette*[Title/Abstract] OR "nicotine dependence"[Title/Abstract] OR "Oral Hygiene"[Mesh] OR "oral health"[Title/Abstract] OR "oral hygiene"[Title/Abstract] OR "medication adherence"[Title/Abstract] OR "medical regimen adherence"[Title/Abstract] OR "medication compliance"[Title/Abstract] OR "medication adherence"[MESH] OR "medication persistence"[Title/Abstract] OR "drug compliance"[Title/Abstract] OR "drug adherence"[Title/Abstract] OR "drug persistence"[Title/Abstract] OR "pharmacotherapy compliance"[Title/Abstract] OR "pharmacotherapy adherence"[Title/Abstract] OR "heart-rate variability"[Title/Abstract] OR "heart rate variability"[Title/Abstract] OR "allostatic load"[Title/Abstract] OR "blood pressure"[Title/Abstract] OR "body mass index"[Title/Abstract] OR cortisol[Title/Abstract])])])])]) NOT animal[Filter]

Supplement 2. References of included reviews

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Supplemental 3. Tables and Figures

Table 1.

Coding definitions and examples for self-regulation intervention components

Component	Definition used for coding	Examples
Goal setting	Goal setting outcome and goal setting behaviour	<ul style="list-style-type: none"> ● “Step goal”, “facilitate goal setting”, “subject-generated written or oral medication adherence behavioral goals”, “the setting of graded tasks” ● “T10. Prompt specific goal setting” (Michie et al., 2009) ● Person is encouraged to set a general goal that can be achieved by behavioural means but is not defined in terms of behaviour (e.g., to reduce blood pressure or lose/maintain weight), as opposed to a goal based on changing behaviour as such (French et al., 2014) ● Goal setting defined as the 'setting of specific goals aimed at improving compliance with hand hygiene, which can both apply at individual and group level and can include healthcare associated infection rates' (Luangasanatip et al., 2015) ● Subject-generated written or oral medication adherence behavioral goals—sometimes with action plans (Conn, Ruppap, 2017)
Implementation intentions Prompt review of goals	Implementation intention interventions Review behavioural goals or outcome goals	<ul style="list-style-type: none"> ● “Goal intentions furnished with specific action plans” (Adriaanse et al., 2011) ● T11: Prompt review of behavioral goals: review and/or reconsideration of previously set goals or intentions (Tyson et al., 2014) ● Prompt review of outcome goals (BCT 11) Sykes-Muskett et al., 2015) ● “Behavior goal review” (O'Brien et al., 2015)
Prompt self-monitoring	Self-monitoring of behaviour and self-monitoring of outcome	<ul style="list-style-type: none"> ● T12. Prompt self-monitoring of behavior: The person is asked to keep a record of specified behaviors (e.g., in a diary) (Tyson et al., 2014) ● Prompt self-monitoring of behaviour (BCT 16) ● Prompt self-monitoring of behavioural outcome (BCT 17) ● “Self-measurement of blood pressure” (Bray et al., 2010); “Subjects record their medication behavior, sometimes using medication diaries” (Conn & Ruppap, 2017); “step diary” (Bravata et al., 2007); “Use of exercise logs” (Higgins et al., 2014) ● Self-monitoring as an intervention component measured through exercise logs, heart rate monitors (to determine exercise intensity) or pedometers (Lim et al., 2015) ● Monitoring behavior and monitoring outcomes (Harkin et al., 2016) ● Self-measurement of blood pressure without medical professional input, if usual care did not include patient self-monitoring (Bray et al., 2010)

Emotional control training/Inhibitory control training	Emotional control training BCT Inhibitory control training	<ul style="list-style-type: none"> ● “BS - Specific focus on behaviour, maximizing self-regulatory capacity/skills” (Bartlett, Sheeran, & Hawley, 2014) ● 'The person is asked to keep a record of specified behaviors' (Brannon & Cushing, 2015) ● Self-monitoring as an intervention component in mHealth interventions through text messaging or phone apps (Darling & Sato, 2017) ● “Inhibitory control training task (Stop Signal, Go/No- Go, and Antisaccade)” (Jones et al., 2016); “food-specific inhibition training (Stop-signal training and Go/no go training)” (Turton et al., 2016) ● “Emotional control training such as the go/no-go task (GNG) or the stop-signal task (SST) which is used to strengthen inhibitory control” (Allom et al., 2016)
Prompt self-talk Stress management	Prompt self-talk BCT Stress management BCT Emotional control training	<ul style="list-style-type: none"> ● “BS6 - Prompt self-recording” (Bartlett et al., 2014) ● Stress management/emotional control training: This is a set of specific techniques (e.g., progressive relaxation) that do not target the behaviour directly but seek to reduce anxiety and stress to facilitate the performance of the behaviour (French et al., 2014) ● Teaching subjects stress-reduction methods, including coping skills, relaxation methods, anger-management, and mindfulness techniques (Conn & Ruppap, 2017)
Action planning	Action planning BCT	<ul style="list-style-type: none"> ● “BS3 - Facilitate action planning/develop treatment plan” (Bartlett et al., 2014); “Action and coping plans” (Bélanger-Gravel et al., 2013); “Strategy planning (goal-related BCTs)” (McEwan et al., 2016) ● Action planning: involves detailed planning of what the person will do including, as a minimum, when, in which situation and/or where to act (French et al., 2014) ● “COPD self-management interventions that included a written action plan for acute exacerbations of COPD” (Lenferink et al., 2017)
Barrier identification /Problem solving	Problem solving BCT Prompt barrier identification Barrier identification/Problem solving	<ul style="list-style-type: none"> ● “Problem solving: Studies have used problem solving as a multidimensional construct, comprising both effective and ineffective problem-solving strategies, emotional and cognitive orientation to problem solving, ability to learn from past experience, and environmental context. Problem solving was checked only if problem solving was specifically mentioned in the article, even if a description of problem solving was not provided.” (Bolen et al., 2014) ● Prompt barrier identification: identify barriers to performing the behavior and plan ways of overcoming them (Tyson et al., 2014); “self-management skills” (Albarracin et al., 2008)

Relapse prevention/coping planning	Relapse prevention Relapse prevention/coping planning	<ul style="list-style-type: none"> ● Barrier identification/problem solving: This presumes having formed an initial plan to change behaviour. The person is prompted to think about potential barriers and identify ways of overcoming them (French et al., 2014) ● 'Facilitate barrier identification and problem solving' (Bartlett et al., 2014): "Identification of high-risk situations" (Scott-Sheldon et al., 2014) ● Specifically address barriers to adherence and adherence problem solving (Conn et al., 2015) ● "Barrier management: The management of barriers was determined based on the definition provided by Abraham and Michie (2008) in the taxonomy of theoretical techniques for behaviour change." (Bélanger-Gravel et al., 2013) ● Relapse prevention: following initial change, help identify situations likely to result in readopting risk behaviors or failure to maintain new behaviors, and help the person plan to avoid or manage these situations (Tyson et al., 2014) ● Relapse prevention/coping planning: This relates to planning how to maintain behaviour that has been changed. The person is prompted to identify in advance situations in which the changed behaviour may not be maintained and develop strategies to avoid or manage those situations (French et al., 2014) ● "On-demand messaging services for additional support" (Spohr et al., 2015)
Time management	Time management BCT	<ul style="list-style-type: none"> ● T26. Time management (Michie et al., 2009)
Provide feedback	BCT 2.2 - Feedback on behaviour BCT 2.7 - Feedback on outcome of behaviour Provide feedback on performance (BCT 19)	<ul style="list-style-type: none"> ● "Feedback: an intervention that includes a review process following some intervention (e.g., education)" (Sherifali et al., 2015) ● "Direct feedback to patients" (Ebbert et al., 2007); "Intervention component based on electronically monitored adherence feedback" (Demonceau et al., 2013); "Feedback intervention component (goal-related BCTs)" (McEwan et al., 2016); "Personalized feedback" (Scott-Sheldon et al., 2014) ● "Feedback about subjects' adherence scores and feedback about blood pressure" (Conn et al., 2015); "Interventions that included assessment messages" (Spohr et al., 2015)

Note. BCT = behaviour change technique.

Table 2

Results of Methodological Quality for each Meta-Analysis Using the AMSTAR 2 Instrument

Meta-analysis																																
	PICO	Type of study design	Participants/setting	Intervention(s)	Comparator(s)	Outcome(s)	Protocol	Study design criteria	Searched 2 databases	Provided key words	Justified PR	Searched ref. lists	Searched study registries	Consulted experts	Searched grey literature	Search within 24 mo.	Literature search	Study selection	Coding	Excluded studies	PRISMA*	Included studies - detail	RoB - RCTs	RoB - NRSIs	Funding sources	Meta-analysis methods - RCTs	Meta-analysis methods - NRSIs	Assess RoB impact	Incorporate RoB	Heterogeneity	Publication bias	COIs reported
Abraham C, Graham-Rowe E, 2009	Y	X	X	X		X	No	No	X	X						X	No	No	Y	No	No	Y	No	No	No	Y	No	Y	Y	Y	No	No
Adriaanse MA, Vinkers CD, De Ridder DT, Hox JJ, De Wit JB, 2011	No			X		X	No	No	X	X		X				X	No	No	No	No	No	PY	No	No	No	No	No	No	No	Y	Y	No
Albarracín J, Albarracín D, Durantini M, 2008	No		X	X		X	No	No	X	X	X	X		X	X		PY	No	Y	No	No	No	No	No	No	No	No	No	No	No	No	No
Allom V, Mullan B, Hagger M, 2016	Y	X		X	X		No	No	X	X		X		X	X	X	No	No	Y	PY	Y	No	No	NA	No	Y	NA	No	No	Y	Y	Y
Bartlett YK, Sheeran P, Hawley MS, 2014	Y	X	X	X		X	No	No	X	X		X				X	No	No	No	No	Y	Y	No	NA	No	Y	NA	Y	Y	Y	Y	No
Bélangier-Gravel A, Godin G, Amireault S, 2013	Y	X	X	X	X	X	No	No	X	X		X	X	X	X		No	No	Y	No	Y	PY	No	NA	No	No	NA	No	No	No	Y	No
Bolen SD, Chandar A, Falck-Ytter C, Tyler C, Perzynski AT, Gertz AM, Sage P, Lewis S, Cobabe M, Ye Y, Menegay M, Windish DM, 2014	Y	X	X	X	X	X	No	No	X	X		X	X			No	No	Y	No	Y	PY	PY	NA	Y	Y	NA	Y	Y	Y	Y	Y	Y
Brannon EE, Cushing CC, 2015	Y	X	X	X		X	No	Y	X	X						X	No	No	No	No	Y	PY	Y	NA	No	Y	NA	No	No	Y	No	Y
Bravata DM, Smith-Spangler C, Sundaram V, Gienger AL, Lin N, Lewis R, Stave CD, Olkin I, Sirard JR, 2007	No		X	X		X	No	No	X	X		X		X		X	No	No	Y	No	Y	PY	No	No	No	Y	Y	No	No	Y	No	Y
Bray EP, Holder R, Mant J, McManus RJ, 2010	No	X		X	X	X	Y	No	X	X	X	X				X	PY	No	Y	No	Y	Y	No	NA	No	Y	NA	No	No	Y	Y	Y
Casey B, Coote S, Shirazipour C, Hannigan A, Motl R, Martin Ginis K, Latimer-Cheung A, 2017	Y	X	X	X		X	No	No	X	X		X		X		X	No	Y	Y	No	Y	PY	PY	PY	No	No	No	No	No	Y	No	No
Chamberlain C, O'Mara-Eves A, Porter J, Coleman T, Perlen SM, Thomas J, McKenzie JE, 2017	Y	X	X	X	X	X	Y	No	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	NA	No	Y	NA	Y	Y	Y	Y	Y
Chase J-AD, Bogener JL, Ruppap TM, Conn VS, 2016	No		X	X	X	X	No	No	X	X	X	X	X				PY	No	Y	No	No	No	PY	No	No	Y	No	Y	No	Y	No	Y
Cheng L, Sit JW, Choi KC, Chair SY, Li X, He XL, 2017	Y	X	X	X	X	X	No	No	X	X		X	X			X	No	Y	Y	No	Y	Y	NA	No	Y	NA	No	Y	Y	Y	No	No
Conn VS, Hafdahl AR, Brown SA, Brown LM, 2008	Y	X	X	X		X	No	Y	X	X		X	X	X		No	No	Y	No	No	No	No	No	No	No	No	No	No	No	Y	Y	No
Conn VS, Hafdahl AR, Cooper PS, Ruppap TM, Mehr DR, Russell CL, 2009	Y	X	X	X		X	No	Y	X	X		X	X		X	No	No	Y	No	No	PY	No	NA	No	Y	NA	No	No	Y	Y	No	
Conn VS, Hafdahl AR, Mehr DR, 2011	No			X		X	No	No	X			X	X			No	No	Y	No	No	No	No	No	No	Y	No	No	Y	Y	Y	No	
Conn VS, Ruppap TM, 2017	No		X	X		X	No	No	X	X		X	X	X	X	No	No	Y	No	Y	PY	No	No	No	Y	No	No	No	Y	Y	Y	
Conn VS, Ruppap TM, Chase J A.D, Enriquez M, Cooper PS, 2015	Y	X	X	X		X	No	No	X	X	X		X			PY	No	No	No	Y	No	PY	No	No	Y	No	Y	Y	Y	Y	Y	
Cristea IA, Kok RN, Cuijpers P, 2016	No	X		X	X	X	No	No	X	X	X					X	PY	No	No	No	Y	PY	Y	NA	No	No	NA	Y	Y	Y	Y	Y
Cugelman B, Thelwall M, Dawes P, 2011	Y	X	X	X	X	X	No	No	X	X				X	X	X	No	No	No	No	Y	PY	PY	PY	No	Y	No	No	No	No	No	Y
Darling KE, Sato AF, 2017	No		X	X		X	No	No	X	X						X	No	No	No	No	Y	PY	No	No	No	No	No	No	No	No	No	Y
Demonceau J, Ruppap T, Kristanto P, Hughes D, Fargher E, Kardas P, Geest S, Dobbels F, Lewek P, Urquhart J, Vrijens B, 2013	Y	X	X	X	X	X	No	No	X	X						X	No	Y	Y	No	Y	PY	Y	NA	No	Y	NA	Y	Y	Y	Y	Y
Denford S, Taylor RS, Campbell JL, Greaves CJ, 2014	Y	X	X	X	X	X	No	No	X	X	X	X	X			X	PY	No	Y	No	Y	PY	Y	NA	No	Y	NA	Y	Y	Y	Y	Y
Dombrowski SU, Sniehotta FF, Avenell A, Johnston M, MacLennan G, Araújo-Soares V, 2012	Y	X	X	X	X	X	No	No	X			X				No	No	No	No	Y	PY	PY	NA	No	Y	NA	Y	No	Y	Y	No	
Ebbert JO, Montori V, Vickers KS, Erwin PC, Dale LC, Stead LF, 2007	Y	X	X	X	X	X	Y	No	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	PY	NA	No	Y	NA	Y	Y	Y	No	Y
Epton T, Harris PR, Kane R, van Koningsbruggen GM, Sheeran P, 2015	No			X	X	X	No	No	X	X		X		X	X	X	No	No	Y	No	Y	No	PY	No	No	Y	No	Y	No	Y	Y	No

Meta-analysis

	PICO	Type of study design	Participants/setting	Intervention(s)	Comparator(s)	Outcome(s)	Protocol	Study design criteria	Searched 2 databases	Provided key words	Justified PR	Searched ref. lists	Searched study registries	Consulted experts	Searched grey literature	Search within 24 mo.	Literature search	Study selection	Coding	Excluded studies	PRISMA*	Included studies - detail	RoB - RCTs	RoB - NRSIs	Funding sources	Meta-analysis methods - RCTs	Meta-analysis methods - NRSIs	Assess RoB impact	Incorporate RoB	Heterogeneity	Publication bias	COIs reported	
Farmer A, Perera R, Ward A, Heneghan C, Oke J, Barnett AH, Davidson MB, Guerci B, Coates V, Schwedes U, O'Malley S, 2012	Y	X	X	X	X	X	Y	No	X	X	X	X	X	X	X	X	PY	Y	Y	No	No	Y	Y	NA	Y	Y	NA	Y	No	Y	No	Y	
Fletcher BR, Hartmann-Boyce J, Hinton L, McManus RJ, 2015	Y	X	X	X		X	Y	No	X	X	X	X	X		X	X	PY	Y	Y	No	Y	Y	No	No	Y	No	No	No	No	Y	No	Y	
French DP, Olander EK, Chisholm A, Mc Sharry J, 2014	Y	X	X	X		X	No	No	X	X		X				X	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	Y	
Glynn LG, Murphy AW, Smith SM, Schroeder K, Fahey T, 2010	Y	X	X	X	X	X	No	No	X	X	X		X				PY	Y	Y	No	Y	PY	Y	NA	No	No	NA	No	No	No	No	Y	
Goodwin L, Ostuzzi G, Khan N, Hotopf MH, Moss-Morris R, 2016	Y	X	X	X		X	No	No	X	X						X	No	Y	Y	No	Y	Y	Y	NA	No	Y	NA	No	Y	Y	No	Y	
Hajek P, Stead LF, West R, Jarvis M, Hartmann-Boyce J, Lancaster T, 2013	Y	X	X	X	X	X	PY	No	X	X	X		X			X	PY	No	Y	Y	Y	Y	Y	NA	No	Y	NA	Y	Y	Y	No	Y	
Harkin B, Webb TL, Chang BP, Prestwich A, Conner M, Kellar I, Benn Y, Sheeran P, 2016	Y	X	X	X	X	X	No	No	X	X		X		X	X		No	No	Y	No	Y	No	PY	NA	No	Y	NA	Y	Y	Y	Y	No	
Higgins TJ, Middleton KR, Winner L, Janelle CM, 2014	Y	X	X	X		X	No	No	X	X		X					No	No	No	No	Y	Y	Y	NA	No	Y	NA	No	No	Y	Y	No	
Janssen V, De Gucht V, Dusseldorp E, Maes S, 2013	Y	X	X	X		X	No	No	X	X							No	Y	Y	No	Y	Y	PY	NA	No	Y	NA	Y	Y	Y	Y	Y	
Jones A, Di Lemma LCG, Robinson E, Christiansen P, Nolan S, Tudur-Smith C, Field M, 2016	Y	X	X	X	X	X	No	No	X	X	X	X		X	X	X	PY	Y	Y	No	Y	Y	No	NA	No	Y	NA	No	No	Y	Y	Y	
Knittle K, Maes S, de Gucht V, 2010	Y	X	X	X		X	No	No	X	X						X	No	No	Y	No	Y	Y	PY	NA	No	Y	NA	Y	No	No	Y	No	
Lara J, Evans EH, O'Brien N, Moynihan PJ, Meyer TD, Adamson AJ, Errington L, Sniehotta FF, White M, Mathers JC, 2014	Y	X	X	X		X	Y	No	X	X	X				X	X	PY	Y	Y	No	Y	No	Y	NA	No	No	NA	No	No	No	No	Y	Y
Lenferink A, Brusse-Keizer M, van der Valk PD, Frith PA, Zwerink M, Monninkhof EM, van der Palen J, Effing TW, 2017	Y	X	X	X	X	X	Y	No	X	X	X	X	X	X	X	X	Y	Y	Y	Y	Y	Y	Y	NA	No	Y	NA	Y	Y	Y	Y	Y	
Lim S, O'Reilly S, Behrens H, Skinner T, Ellis I, Dunbar JA, 2015	Y		X	X		X	No	No	X	X	X		X			X	PY	Y	Y	No	Y	Y	Y	No	No	Y	NA	No	No	Y	Y	Y	
Lin MY, Liu MF, Hsu LF, Tsai PS, 2017	Y	X	X	X	X	X	No	No	X	X		X				X	No	Y	Y	No	Y	PY	Y	NA	No	Y	NA	No	Y	Y	Y	No	
Luangsanatip N, Hongsuwan M, Limmathurotsakul D, Lubell Y, Lee AS, Harbarth S, Day NP, Graves N, Cooper BS, 2015	Y	X	X	X	X	X	No	No	X	X	X	X	X			X	PY	Y	Y	Y	Y	Y	Y	Y	No	Y	Y	No	No	Y	Y	Y	
Malanda UL, Welschen LMC, Riphagen II, Dekker JM, Nijpels G, Bot SDM, 2012	Y	X	X	X	X	X	Y	No	X	X	X	X	X		X	X	PY	Y	Y	Y	Y	Y	Y	NA	Y	Y	NA	Y	Y	Y	No	Y	
McDermott MS, Oliver M, Iverson D, Sharma R, 2016	Y	X	X	X	X	X	No	No	X	X					X	X	No	No	No	No	Y	PY	No	No	No	No	No	No	No	No	No	No	Y
McEwan D, Harden SM, Zumbo BD, Sylvester BD, Kaulius M, Ruissen GR, Dowd AJ, Beauchamp MR, 2016	Y	X	X	X	X	X	No	No	X	X	X	X	X		X	X	PY	No	Y	No	Y	PY	Y	NA	No	Y	NA	Y	Y	Y	Y	Y	
Michie S, Abraham C, Whittington C, McAteer J, Gupta S, 2009	Y	X	X	X	X	X	No	No	X	X		X	X			X	No	Y	Y	Y	Y	PY	No	No	No	Y	Y	No	No	Y	Y	No	
O'Brien N, McDonald S, Araujo-Soares V, Lara J, Errington L, Godfrey A, Meyer TD, Rochester L, Mathers JC, White M, Sniehotta FF, 2015	Y	X	X	X	X	X	Y	No	X	X		X					No	Y	Y	No	Y	Y	Y	NA	No	Y	NA	Y	Y	Y	Y	Y	
Olander EK, Fletcher H, Williams S, Lou A, Turner A, French DP, 2013	Y	X	X	X	X	X	No	No	X	X	X	X				X	PY	No	No	No	No	No	No	No	No	No	No	No	No	No	Y	Y	Y
Onrust SA, Otten R, Lammers J, Smit F, 2016	Y	X	X	X	X	X	No	No	X	X		X	X			X	No	No	Y	No	Y	No	No	No	No	Y	No	No	No	Y	No	Y	
Ruppar TM, Dunbar-Jacob JM, Mehr DR, Lewis L, Conn VS, 2017	Y	X	X	X		X	No	Y	X	X	X	X	X	X	X	X	Y	No	Y	No	Y	No	PY	NA	Y	Y	NA	Y	No	No	Y	Y	
Samdal GB, Eide GE, Barth T, Williams G, Meland E, 2017	Y	X	X	X		X	Y	No	X	X	X						PY	Y	Y	No	Y	Y	Y	NA	No	Y	NA	Y	Y	Y	Y	Y	
Scott-Sheldon LA, Carey KB, Elliott JC, Garey L, Carey MP, 2014	Y	X	X	X	X	X	No	No	X	X	X	X		X	X	X	PY	No	Y	Y	Y	PY	PY	NA	No	Y	NA	No	No	Y	Y	Y	

Meta-analysis

	PICO	Type of study design	Participants/setting	Intervention(s)	Comparator(s)	Outcome(s)	Protocol	Study design criteria	Searched 2 databases	Provided key words	Justified PR	Searched ref. lists	Searched study registries	Consulted experts	Searched grey literature	Search within 24 mo.	Literature search	Study selection	Coding	Excluded studies	PRISMA*	Included studies - detail	RoB - RCTs	RoB - NRSIs	Funding sources	Meta-analysis methods - RCTs	Meta-analysis methods - NRSIs	Assess RoB impact	Incorporate RoB	Heterogeneity	Publication bias	COIs reported
Sheeran P, Maki A, Montanaro E, Avishai-Yitshak A, Bryan A, Klein WM. P, Miles E, Rothman AJ, 2016	Y	X	X	X	X	X	No	Y	X	X	X	X		X	X	X	PY	No	Y	No	Y	No	PY	NA	No	Y	NA	Y	Y	Y	No	No
Sherifali D, Bai JW, Kenny M, Warren R, Ali MU, 2015	Y	X	X	X		X	No	No	X				X				No	Y	Y	No	No	Y	PY	NA	No	Y	NA	Y	Y	No	No	Y
Song F, Huttunen-Lenz M, Holland R, 2010	Y	X	X	X		X	No	No	X	X		X	X			X	No	No	No	No	No	Y	No	NA	No	No	NA	No	Y	Y	No	No
Spohr SA, Nandy R, Gandhiraj D, Vemulapalli A, Anne S, Walters ST, 2015	No	X		X		X	No	No	X	X		X			X	X	No	Y	No	No	Y	PY	No	NA	No	Y	NA	No	No	Y	Y	Y
St Amand A, Bard DE, Silovsky JF, 2008	No		X	X		X	No	No	X			X		X			No	No	No	No	No	PY	No	No	No	Y	No	No	No	No	No	No
Sykes-Muskett BJ, Prestwich A, Lawton RJ, Armitage CJ, 2015	Y	X	X	X		X	Y	No	X	X		X	X			X	No	Y	Y	No	Y	Y	Y	NA	No	Y	NA	Y	No	Y	No	Y
Tanner-Smith EE, Lipsey MW, 2015	Y	X	X	X	X	X	No	No	X		X	X	X		X	X	No	Y	Y	No	Y	PY	No	No	No	Y	Y	No	No	Y	Y	Y
Tanner-Smith EE, Steinka-Fry KT, Hennessy EA, Lipsey MW, Winters KC, 2015	Y	X	X	X	X	X	No	No	X		X	X	X		X	X	No	Y	Y	No	Y	No	No	No	Y	Y	No	No	Y	Y	Y	Y
Toli A, Webb TL, Hardy GE, 2016	Y	X	X	X	X	X	No	No	X	X		X		X	X	X	No	No	Y	No	Y	PY	No	No	No	Y	No	No	No	Y	Y	No
Turton R, Bruidegom K, Cardi V, Hirsch CR, Treasure J, 2016	No	X		X	X	X	No	Y	X	X		X				X	No	Y	No	No	Y	Y	No	NA	No	Y	NA	No	No	Y	Y	Y
Tyson M, Covey J, Rosenthal HE, 2014	Y	X	X	X	X	X	No	No	X	X	X	X		X		X	PY	No	No	No	No	Y	Y	PY	No	No	Y	Y	No	Y	No	Y
van Genugten L, Dusseldorp E, Webb TL, van Empelen P, 2016	No	X		X		X	No	No	X	X	X			X	X	X	PY	No	No	No	Y	PY	No	NA	No	Y	NA	No	No	Y	No	Y
Zhu H, Zhu Y, Leung SW, 2016	Y	X	X	X	X	X	Y	No	X	X	X	X	X		X	X	PY	Y	Y	No	Y	No	Y	NA	No	Y	NA	Y	No	Y	Y	Y

Note. NA=Not applicable. NRSI=Non-randomized studies of interventions. PICO=Defined Problem/Patient/Population, Intervention/Indicator, Comparison, Outcome. PRISMA: Moher et al.'s reporting standards. PY=Partial yes. RCT=Randomized controlled trial. RoB=Risk of bias. Y=Yes. X=Item was reported by review authors and was used to determine AMSTAR 2 tool item rating.

Table 3.

Correlations of methodological quality scores (proportion of relevant AMSTAR 2 items satisfied) with other methodological variables of interest (l = 66)

Dimension	1	2	3	4	5
1. Methodological quality	—				
2. Publication date	.31*	—			
3. Number of authors	.49***	.09	—		
4. Review size (<i>k</i>)	-.14	.05	-.15	—	
5. Journal impact	.21	-.04	.49***	-.04	—
6. Citations per year ^a	.10	-.26*	.24	.06	.49**

Note. *l* = number of meta-analyses.

* $p < .05$. ** $p < .01$. *** $p < .001$.

^aAdjusted for publication year.

Table 4

Correlations of individual AMSTAR 2 items satisfied with other methodological variables of interest ($l = 66$)

Variable	Year of publication	Number of authors	Review size (k)	Journal Impact Factor	Citations per year ^a
PICO	0.12	0.22	-0.22	-0.01	-0.05
Protocol	0.04	0.28*	-0.16	0.17	0.06
Study design criteria	-0.04	-0.02	0.06	-0.10	-0.07
Literature search	0.13	0.22	-0.13	0.07	0.03
Study selection	0.20	0.35**	-0.19	0.09	0.05
Coding	0.02	0.31*	0.17	0.22	0.13
Excluded studies	-0.07	0.18	-0.06	0.21	0.36**
PRISMA flow chart	0.48***	0.16	-0.02	0.17	0.09
Included studies - detail	-0.06	0.09	-0.26*	0.10	-0.04
Risk of bias - RCTs	0.32**	0.33**	-0.23	0.10	-0.13
Risk of bias - NRSIs	0.14	0.29**	-0.28*	0.02	-0.13
Funding sources	0.01	0.35*	-0.04	0.10	-0.05
Meta-analysis methods - RCTs	0.16	0.16	0.08	0.19	0.12
Meta-analysis methods - NRSIs	0.16	0.30*	-0.29*	0.04	-0.15
Assess risk of bias impact	0.11	0.27*	-0.14	0.04	-0.04
Incorporate risk of bias	0.09	0.22	-0.01	-0.06	-0.03
Evaluate heterogeneity	0.17	0.23	0.14	0.15	0.17
Publication bias	0.16	0.09	0.12	-0.01	0.11
Conflicts of interest reported	0.32*	0.22	-0.02	0.20	-0.01

Note. l = number of meta-analyses.

* $p < .05$. ** $p < .01$. *** $p < .001$.

^aAdjusted for publication year.

Table 5.

Intervention Components Examined Across Reviews, for each Individual Review

Study	Taxonomy Used	Goal setting	Prompt review of goals	Prompt self-monitoring	Emotional control training	Prompt self-talk	Stress management	Action planning	Barrier identification/ Problem solving	Relapse prevention/ Coping planning	Time management	Provide feedback on performance	Inhibitory control training ^a	Self-management ^a	Implementation Intentions ^a	Self-affirmation ^a	Self-control ^a	High vs. low SR ^a	Total components examined
Abraham, Graham-Rowe, 2009	1	◆	◆	◆															3
Adriaanse, Vinkers, De Ridder, Hox, De Wit, 2011	NA/NR														◆				1
Albarracín, Albarracín, Durantini, 2008	NA/NR								◆										1
Allom, Mullan, Hagger, 2016	NA/NR				◆														1
Bartlett, Sheeran, Hawley, 2014	5	◆	◆	◆		◆		◆	◆	◆		◆							8
Bélanger-Gravel, Godin, Amireault, 2013	NA/NR							◆	◆						◆				3
Bolen, Chandar, Falck-Ytter, Tyler, Perzynski, Gertz, Sage, Lewis, Cobabe, Ye, Menegay, Windish, 2014	NA/NR								◆										1
Brannon, Cushing, 2015	1			◆															1
Bravata, Smith-Spangler, Sundaram, Gienger, Lin, Lewis, Stave, Olkin, Sirard, 2007	NA/NR	◆		◆															2
Bray, Holder, Mant, McManus, 2010	NA/NR			◆															1
Casey, Coote, Shirazipour, Hannigan, Motl, Martin Ginis, Latimer-Cheung, 2017	2	◆																	1
Chamberlain, O'Mara-Eves, Porter, Coleman, Perlen, Thomas, McKenzie, 2017	NA/NR											◆							1
Chase, Bogener, Ruppap, Conn, 2016	NA/NR	◆		◆					◆										3
Cheng, Sit, Choi, Chair, Li, He, 2017	5	◆						◆	◆			◆							4

Study	Taxonomy Used	Goal setting	Prompt review of goals	Prompt self-monitoring	Emotional control training	Prompt self-talk	Stress management	Action planning	Barrier identification/Problem solving	Relapse prevention/Coping planning	Time management	Provide feedback on performance	Inhibitory control training ^a	Self-management ^a	Implementation Intentions ^a	Self-affirmation ^a	Self-control ^a	High vs. low SR ^a	Total components examined
Conn, Hafdahl, Brown, Brown, 2008	NA/NR	◆		◆					◆			◆							4
Conn, Hafdahl, Cooper, Ruppap, Mehr, Russell, 2009	NA/NR			◆															1
Conn, Hafdahl, Mehr, 2011	NA/NR	◆		◆					◆	◆									4
Conn, Ruppap, 2017	NA/NR	◆		◆			◆		◆			◆							5
Conn, Ruppap, Chase, Enriquez, Cooper, 2015	NA/NR			◆					◆			◆							3
Cristea, Kok, Cuijpers, 2016																			0
Cugelman, Thelwall, Dawes, 2011	4	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆							10
Darling, Sato, 2017	NA/NR			◆															1
Demonceau, Ruppap, Kristanto, Hughes, Fargher, Kardas, Geest, Dobbels, Lewek, Urquhart, Vrijens, 2013	NA/NR											◆							1
Denford, Taylor, Campbell, Greaves, 2014	1	◆	◆	◆			◆		◆			◆							6
Dombrowski, Sniehotta, Avenel, Johnston, MacLennan, Araújo-Soares, 2012	1			◆						◆									2
Ebbert, Montori, Vickers, Erwin, Dale, Stead, 2015	NA/NR											◆							1
Epton, Harris, Kane, van Koningsbruggen, Sheeran, 2015	NA/NR															◆			1
Farmer, Perera, Ward, Heneghan, Oke, Barnett, Davidson, Guerci, Coates, Schwedes, O'Malley, 2012	NA/NR			◆															1
Fletcher, Hartmann-Boyce, Hinton, McManus, 2015	NA/NR			◆															1

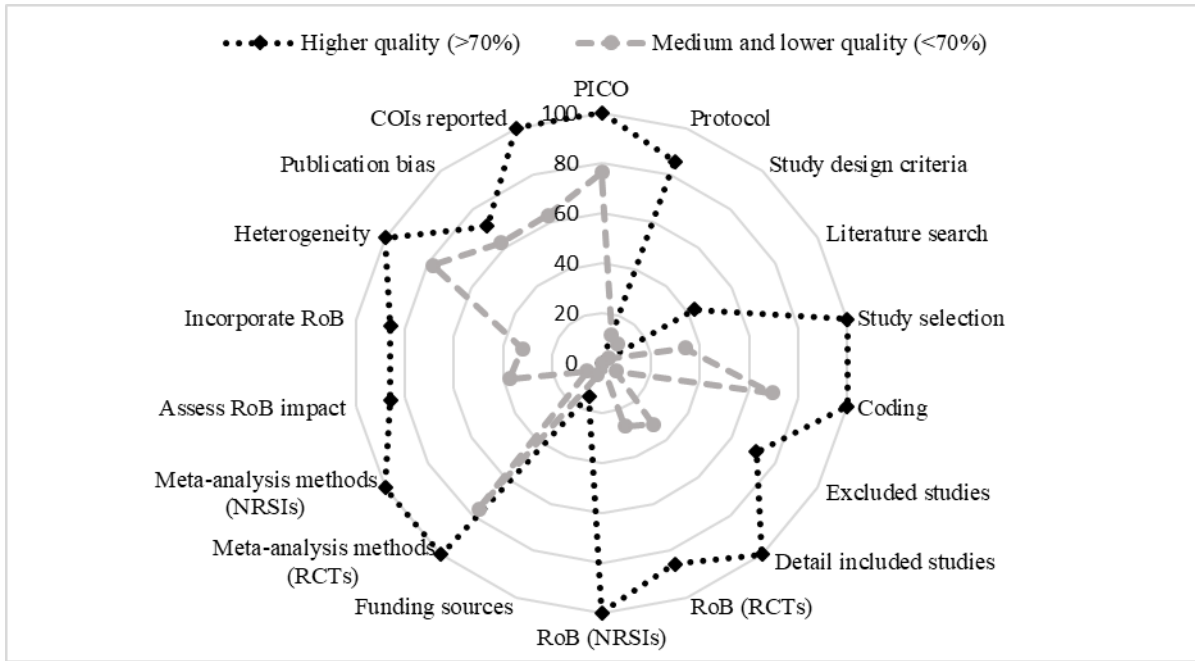
Study	Taxonomy Used	Goal setting	Prompt review of goals	Prompt self-monitoring	Emotional control training	Prompt self-talk	Stress management	Action planning	Barrier identification/Problem solving	Relapse prevention/Coping planning	Time management	Provide feedback on performance	Inhibitory control training ^a	Self-management ^a	Implementation Intentions ^a	Self-affirmation ^a	Self-control ^a	High vs. low SR ^a	Total components examined
French, Olander, Chisholm, Mc Sharry, 2014	2	◆	◆	◆			◆	◆	◆	◆		◆							8
Glynn, Murphy, Smith, Schroeder, Fahey, 2010	NA/NR			◆															1
Goodwin, Ostuzzi, Khan, Hotopf, Moss-Morris, 2016	2	◆	◆				◆					◆							4
Hajek, Stead, West, Jarvis, Hartmann-Boyce, Lancaster, 2013	NA/NR									◆									1
Harkin, Webb, Chang, Prestwich, Conner, Kellar, Benn, Sheeran, 2016	3	◆	◆	◆				◆											4
Higgins, Middleton, Winner, Janelle, 2014	NA/NR	◆		◆															2
Janssen, De Gucht, Dusseldorp, Maes, 2013	5																	◆	1
Jones, Di Lemma, Robinson, Christiansen, Nolan, Tudur-Smith, Field, 2016	NA/NR												◆						1
Knittle, Maes, de Gucht, 2010	NA/NR																	◆	1
Lara, Evans, O'Brien, Moynihan, Meyer, Adamson, Errington, Sniehotta, White, Mathers, 2014	2	◆	◆						◆			◆							4
Lenferink, Brusse-Keizer, van der Valk, Frith, Zwerink, Monninkhof, van der Palen, Effing, 2017	3							◆											1
Lim, O'Reilly, Behrens, Skinner, Ellis, Dunbar, 2015	NA/NR			◆															1

Study	Taxonomy Used	Goal setting	Prompt review of goals	Prompt self-monitoring	Emotional control training	Prompt self-talk	Stress management	Action planning	Barrier identification/ Problem solving	Relapse prevention/ Coping planning	Time management	Provide feedback on performance	Inhibitory control training ^a	Self-management ^a	Implementation Intentions ^a	Self-affirmation ^a	Self-control ^a	High vs. low SR ^a	Total components examined
Lin, Liu, Hsu, Tsai, 2017	NA/NR													◆					1
Luangasanatip, Hongsuwan, Limmathurotsakul, Lubell, Lee, Harbarth, Day, Graves, Cooper, 2015	NA/NR	◆																	1
Malanda, Welschen, Riphagen, Dekker, Nijpels, Bot, 2012	NA/NR			◆															1
McDermott, Oliver, Iverson, Sharma, 2016	1	◆	◆	◆				◆	◆	◆		◆							7
McEwan, Harden, Zumbo, Sylvester, Kaulius, Ruissen, Dowd, Beauchamp, 2016	1	◆						◆				◆							3
Michie, Abraham, Whittington, McAteer, Gupta, 2009	1	◆	◆	◆		◆	◆		◆	◆	◆	◆							9
O'Brien, McDonald, Araujo-Soares, Lara, Errington, Godfrey, Meyer, Rochester, Mathers, White, Sniehotta, 2015	2	◆	◆	◆					◆			◆							5
Olander, Fletcher, Williams, Lou, Turner, French, 2013	2	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆							10
Onrust, Otten, Lammers, Smit, 2016	NA/NR				◆		◆		◆								◆		4
Ruppar, Dunbar-Jacob, Mehr, Lewis, Conn, 2017	NA/NR			◆															1
Samdal, Eide, Barth, Williams, Meland, 2017	3	◆	◆	◆					◆			◆							5
Scott-Sheldon, Carey, Elliott, Garey, Carey, 2014	NA/NR	◆																	1

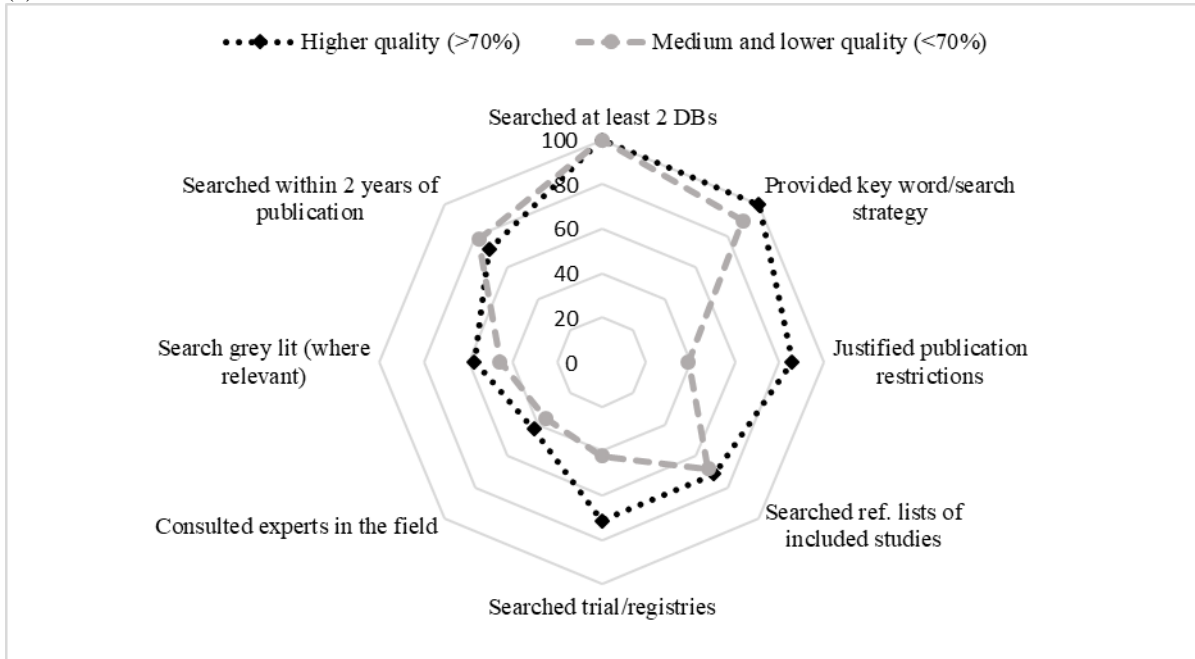
Study	Taxonomy Used	Goal setting	Prompt review of goals	Prompt self-monitoring	Emotional control training	Prompt self-talk	Stress management	Action planning	Barrier identification/ Problem solving	Relapse prevention/ Coping planning	Time management	Provide feedback on performance	Inhibitory control training ^a	Self-management ^a	Implementation Intentions ^a	Self-affirmation ^a	Self-control ^a	High vs. low SR ^a	Total components examined
Sheeran, Maki, Montanaro, Avishai-Yitshak, Bryan, Klein, Miles, Rothman, 2016																			0
Sherifali, Bai, Kenny, Warren, Ali, 2015	NA/NR											◆		◆					2
Song, Huttunen-Lenz, Holland, 2010	NA/NR									◆									1
Spoehr, Nandy, Gandhiraj, Vemulapalli, Anne, Walters, 2015	NA/NR									◆		◆							2
St Amand, Bard, Silovsky, 2008	NA/NR																◆		1
Sykes-Muskett, Prestwich, Lawton, Armitage, 2015	2	◆	◆	◆					◆			◆							5
Tanner-Smith, Lipsey, 2015	NA/NR	◆										◆							2
Tanner-Smith, Steinka-Fry, Hennessy, Lipsey, Winters, 2015	NA/NR	◆							◆			◆							3
Toli, Webb, Hardy, 2016	NA/NR							◆											1
Turton, Bruidegom, Cardi, Hirsch, Treasure, 2016	NA/NR												◆		◆				2
Tyson, Covey, Rosenthal, 2014	1		◆	◆					◆	◆									4
van Genugten, Dusseldorp, Webb, van Empelen, 2016	2	◆	◆	◆	◆		◆	◆	◆	◆		◆							9
Zhu, Zhu, Leung, 2016	NA/NR			◆															1
<i>l</i> examining BCT		28	15	33	4	4	9	12	24	13	3	25	2	2	3	1	2	1	
Percentage of reviews examining BCT		44%	23%	52%	6%	6%	14%	19%	38%	20%	5%	39%	3%	3%	5%	2%	3%	2%	

Note. SR = self-regulation. *l* = Number of reviews. NA/NR = Not applicable/Not reported. 1 = 26 BCT version (Abraham & Michie, 2008). 2 = 40 BCT version (Michie et al., 2011). 3 = 93 BCT version (Michie et al., 2013). 4 = Communication-Based Influence Components Model (Cugelman et al., 2009). 5 = Other BCT version.

^aThis BCT is independent of the 93-BCT taxonomy, or its earlier iterations (Michie et al., 2013).



(a)



(b)

Figure 1. AMSTAR 2 item completion split by higher quality (>70%) and medium to lower quality (<70%): (a) overall and (b) by individual literature search items. COI = conflict of interest; DB = database; lit = literature; NRSI = non-randomized studies of interventions; PICO = problem/patient/population, intervention, comparison, outcome; ref.=Reference; RCT = randomized controlled trial; RoB = risk of bias.

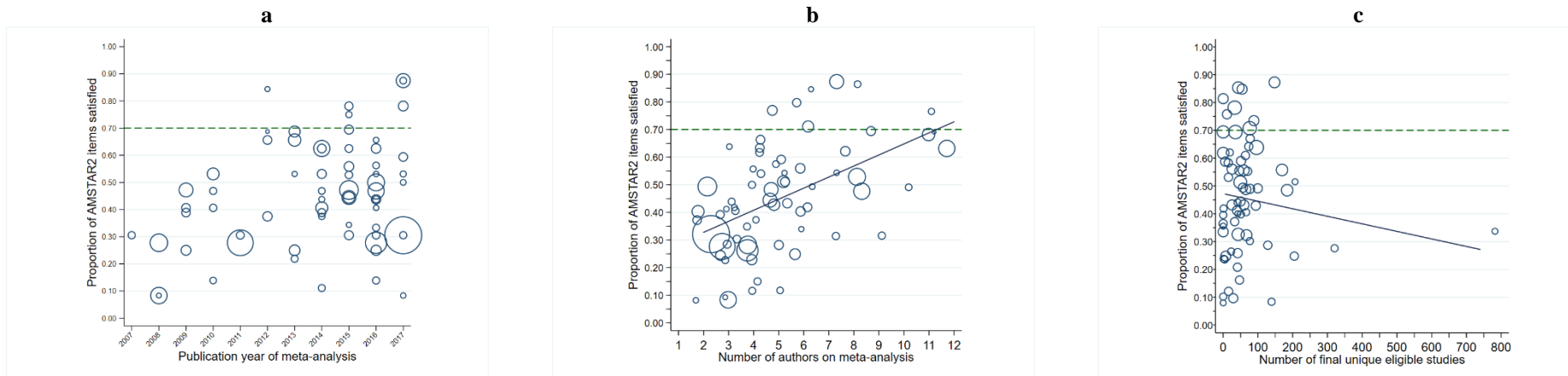


Figure 2. Total meta-analytic study quality (vis-à-vis the AMSTAR 2) as a function (a) of the year the review was published, (b) of the number of authors named for the meta-analysis and (c) of the number of studies meta-analysed. *Note.* In panels a and b, points are sized proportional to the number of studies pooled; in panel c, points are sized proportion to the number of authors. In panels b and c, points are jittered to reduce overlap. The solid diagonal blue line shows the best fitting linear trend, and, the dashed green line shows the cut-point for higher vs. lower quality meta-analyses.