

Supplementary Material File 1: Search strategies and hand-searches

MEDLINE (Ovid)

	Search term
1	((minimi* or prevent* or lessen* or decreas* or reduc*) adj2 (attrition or drop*-out* or dropout* or withdr*w* or missing data)).ab,ti.
2	((increas* or encourag* or maxim* or promot* or improv*) adj2 (retention or follow-up or followup or completion or data collection or data return)).ab,ti.
3	((strateg* or intervention* or method* or technique*) adj3 (retention or attrition or drop*-out* or dropout* or follow-up or followup)).ab,ti.
4	Complian* adj2 (follow-up or followup).ab,ti.
5	((loss or lost) adj2 (follow-up or followup)).ab,ti.
6	((difficult* or problem* or challeng* or success* or feasibl*) adj3 (retain* or retention)).ab,ti.
7	(retention adj2 rate*).ab,ti.
8	(attrition adj2 rate*).ab,ti.
9	((Dropout* or Drop-out*) adj2 rate*).ab,ti
10	(Completion adj2 rate*).ab,ti.
11	((Follow-up or followup) adj2 rate*).ab,ti.
12	(Incomplete adj2 (follow-up or followup)).ab,ti
13	(questionnaire* adj3 (response* adj2 method*)).ab,ti.
14	(questionnaire* adj3 (response adj2 technique*)).ab,ti.
15	(questionnaire response rate*).ab,ti.
16	((Strateg* or increas* or encourag* or maxim* or promot* or improv* or influenc* or success*) adj2 (questionnaire* adj3 response*)).ab,ti.
17	((incentiv* or reminder*) adj3 (retention or retain or respon*e*)).ab,ti.
18	retention adj4 training.ab,ti
19	Trial site adj2 (retention or retain*). ab,ti.
20	Exp "Lost to Follow-Up"/
21	Exp Patient Dropouts/
22	(Patient retention or Dropout* or Drop*-out* or attrition).kw
23	((survey* or questionnaire*) AND (respon*e* or return* or rate*)).ti
24	OR(1-23)
25	Randomized controlled trial.pt
26	Controlled clinical trial.pt
27	Randomi*ed.tw
28	Placebo.tw
29	Clinical trials as topic.sh
30	Randomly.tw
31	Trial*.tw
32	Or/25-31
33	24 AND 32
34	Exp animals/not humans.sh
35	33 not 34
36	Limit to comment, editorial, news and letter
37	35 not 36 (limit to English language and publication upto Dec 2017)

Scopus

	Search term
1	TITLE-ABS-KEY ((minimi* or prevent* or lessen* or decreas* or reduc*) w/2 (attrition or drop*-out* or dropout* or withdr*w* or “missing data”))
2	TITLE-ABS-KEY ((increas* or encourag* or maximi* or promot* or improv*) w/2 (retention or follow-up or followup or completion or “data collection” or “data return”))
3	TITLE-ABS-KEY ((strateg* or intervention* or method* or technique*) w/3 (retention or attrition or drop*-out* or dropout* or follow-up or followup))
4	TITLE-ABS-KEY (Complian* w/2 (follow-up or followup))
5	TITLE-ABS-KEY ((loss or lost) w/2 (follow-up or followup))
6	TITLE-ABS-KEY ((difficult* or problem* or challeng* or success* or feasibl*) w/3 (retain* or retention))
7	TITLE-ABS-KEY (retention w/2 rate*)
8	TITLE-ABS-KEY (attrition w/2 rate*)
9	TITLE-ABS-KEY ((Dropout* or Drop-out*) w/2 rate*)
10	TITLE-ABS-KEY (Completion w/2 rate*)
11	TITLE-ABS-KEY ((Follow-up or followup) w/2 rate*)
12	TITLE-ABS-KEY (Incomplete w/2 (follow-up or followup))
13	TITLE-ABS-KEY (questionnaire* w/3 (response* w/2 method*))
14	TITLE-ABS-KEY (questionnaire* w/3 (response w/2 technique*))
15	TITLE-ABS-KEY (“questionnaire response rate”)
16	TITLE-ABS-KEY ((Strateg* or increas* or encourag* or maximi* or promot* or improv* or influenc* or success*) w/2 (questionnaire* w/3 response*))
17	TITLE-ABS-KEY ((incentiv* or reminder*) w/3 (retention or retain or respon*e*))
18	TITLE-ABS-KEY (retention w/4 training)
19	TITLE-ABS-KEY (“Trial site” w/2 (retention or retain*))
20	KEY (“Patient retention” or Dropout* or Drop*-out* or attrition)
21	TITLE ((survey* or questionnaire*) AND (respon*e* or return* or rate*))
22	OR(1-21) #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9
23	#22 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15
24	#23 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21
25	TITLE-ABS-KEY((clinic* w/1 trial*) OR (randomi* w/1 control*) OR (randomi* w/2 trial*) OR (random* w/1 assign*) OR (random* w/1 allocat*) OR (control* w/1 clinic*) OR (control* w/1 trial) OR placebo* OR (Quantitat* w/1 Stud*) OR (control* w/1 stud*) OR (randomi* w/1 stud*) OR (singl* w/1 blind*) or (singl* w/1 mask*) OR (doubl* w/1 blind*) OR (doubl* w/1 mask*) OR (tripl* w/1 blind*) OR (tripl* w/1 mask*) OR (trebl* w/1 blind*) OR (trebl* w/1 mask*))
26	#24 AND #25
27	INDEXTERMS (animals OR nonhuman)
28	#26 AND NOT #27
29	LANGUAGE(English)
30	#28 AND #29
31	DOCTYPE (ed OR le OR no OR pr)
32	#30 AND NOT #31
33	PUBYEAR < 2018
34	#32 AND #33

Web of Science Core collection (SCI-expanded, SSCI, CPCI-S, CPCI-SSH, ESCI)

	Search term
1	TS= ((minimi* or prevent* or lessen* or decreas* or reduc*) near/2 (attrition or drop*-out* or dropout* or withdr\$w* or "missing data"))
2	TS= ((increas* or encourag* or maxim* or promot* or improv*) near/2 (retention or follow-up or followup or completion or "data collection" or "data return"))
3	TS= ((strateg* or intervention* or method* or technique*) near/3 (retention or attrition or drop*-out* or dropout* or follow-up or followup))
4	TS= (Complian* near/2 (follow-up or followup))
5	TS= ((loss or lost) near/2 (follow-up or followup))
6	TS= ((difficult* or problem* or challeng* or success* or feasibl*) near/3 (retain* or retention))
7	TS= (retention near/2 rate*)
8	TS= (attrition near/2 rate*)
9	TS= ((Dropout* or Drop-out*) near/2 rate*)
10	TS= (Completion near/2 rate*)
11	TS= ((Follow-up or followup) near/2 rate*)
12	TS= (Incomplete near/2 (follow-up or followup))
13	TS= (questionnaire* near/3 (response* near/2 method*))
14	TS= (questionnaire* near/3 (response near/2 technique*))
15	TS= ("questionnaire response rate")
16	TS= ((Strateg* or increas* or encourag* or maxim* or promot* or improv* or influenc* or success*) near/2 (questionnaire* near/3 response*))
17	TS= ((incentiv* or reminder*) near/3 (retention or retain or respon\$e*))
18	TS= (retention near/4 training)
19	TS= ("Trial site" near/2 (retention or retain*))
20	TS= ("Patient retention" or Dropout* or Drop*-out* or attrition)
21	TI= ((survey* or questionnaire*) AND (respon\$e* or return* or rate*))
22	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21
23	TS=((clinic* near/1 trial*) OR (randomi* near/1 control*) OR (randomi* near/2 trial*) OR (random* near/1 assign*) OR (random* near/1 allocat*) OR (control* near/1 clinic*) OR (control* near/1 trial) OR placebo* OR (Quantitat* near/1 Stud*) OR (control* near/1 stud*) OR (randomi* near/1 stud*) OR (singl* near/1 blind*) or (singl* near/1 mask*) OR (doubl* near/1 blind*) OR (doubl* near/1 mask*) OR (tripl* near/1 blind*) OR (tripl* near/1 mask*) OR (trebl* near/1 blind*) OR (trebl* near/1 mask*))
24	#22 and #23
25	Limit 24 to Language(English), 1900-2017

PsycINFO (EBSCO)

	Search term
1	TX ((minimi* or prevent* or lessen* or decreas* or reduc*) n2 (attrition or drop*-out* or dropout* or withdr#w* or "missing data"))
2	TX ((increas* or encourag* or maximi* or promot* or improv*) n2 (retention or follow-up or followup or completion or "data collection" or "data return"))
3	TX ((strateg* or intervention* or method* or technique*) n3 (retention or attrition or drop*-out* or dropout* or follow-up or followup))
4	TX (Complian* n2 (follow-up or followup))
5	TX ((loss or lost) n2 (follow-up or followup))
6	TX ((difficult* or problem* or challeng* or success* or feasibl*) n3 (retain* or retention))
7	TX retention n2 rate*
8	TX attrition n2 rate*
9	TX (Dropout* or Drop-out*) n2 rate*
10	TX Completion n2 rate*
11	TX ((Follow-up or followup) n2 rate*)
12	TX (Incomplete n2 (follow-up or followup))
13	TX (questionnaire* n3 (response* n2 method*))
14	TX (questionnaire* n3 (response n2 technique*))
15	TX ("questionnaire response rate*")
16	TX ((Strateg* or increas* or encourag* or maximi* or promot* or improv* or influenc* or success*) n2 (questionnaire* n3 response*))
17	TX ((incentiv* or reminder*) n3 (retention or retain or respon#e*))
18	TX (retention n4 training)
19	TX ("Trial site" n2 (retention or retain*))
20	DE "Experimental Attrition"
21	DE "Dropouts" or DE "Potential Dropouts"
22	KW ("Patient retention" or Dropout* or Drop*-out* or attrition)
23	TI ((survey* or questionnaire*) AND (respon#e* or return* or rate*))
24	OR(1-23)
25	TX Double-blind
26	TX "random* assigned"
27	TX Control
28	S25 or S26 or S27
29	S24 and S28
30	Limit S29 to animal
31	S29 NOT S30
32	Limit to Language(English) and jan 1900-dec 2017

CINAHL Plus (EBSCO)

	Search term
1	TX ((minimi* or prevent* or lessen* or decreas* or reduc*) n2 (attrition or drop*-out* or dropout* or withdr#w* or “missing data”))
2	TX ((increas* or encourag* or maximi* or promot* or improv*) n2 (retention or follow-up or followup or completion or “data collection” or “data return”))
3	TX ((strateg* or intervention* or method* or technique*) n3 (retention or attrition or drop*-out* or dropout* or follow-up or followup))
4	TX (Complian* n2 (follow-up or followup))
5	TX ((loss or lost) n2 (follow-up or followup))
6	TX ((difficult* or problem* or challeng* or success* or feasibl*) n3 (retain* or retention))
7	TX (retention n2 rate*)
8	TX (attrition n2 rate*)
9	TX (Dropout* or Drop-out*) n2 rate*
10	TX Completion n2 rate*
11	TX ((Follow-up or followup) n2 rate*)
12	TX (Incomplete n2 (follow-up or followup))
13	TX (questionnaire* n3 (response* n2 method*))
14	TX (questionnaire* n3 (response n2 technique*))
15	TX (“questionnaire response rate”)
16	TX ((Strateg* or increas* or encourag* or maximi* or promot* or improv* or influenc* or success*) n2 (questionnaire* n3 response*))
17	TX ((incentiv* or reminder*) n3 (retention or retain or respon#e*))
18	TX (retention n4 training)
19	TX (“Trial site” n2 (retention or retain*))
20	TX (“Patient retention” or Dropout* or Drop*-out* or attrition)
21	TI ((survey* or questionnaire*) AND (respon#e* or return* or rate*))
22	OR(1-21)
23	PT Clinical trial
24	MH “treatment outcomes”
25	TX randomi#ed
26	S23 or S24 or S25
27	S22 and S26
28	Limit 27 to Language(English) and Jan 1900 – dec 2017

Cochrane library

	Search term
1	((minimi* or prevent* or lessen* or decreas* or reduc*) near/2 (attrition or "drop*-out*" or dropout* or withdr*w* or "missing data")):ab,ti
2	((increas* or encourag* or maximi* or promot* or improv*) near/2 (retention or "follow-up" or followup or completion or "data collection" or "data return")):ab,ti
3	((strateg* or intervention* or method* or technique*) near/3 (retention or attrition or "drop*-out*" or dropout* or "follow-up" or followup)):ab,ti
4	Complian* near/2 ("follow-up" or followup):ab,ti
5	((loss or lost) near/2 ("follow-up" or followup)):ab,ti
6	((difficult* or problem* or challeng* or success* or feasibl*) near/3 (retain* or retention)):ab,ti
7	(retention near/2 rate*):ab,ti
8	(attrition near/2 rate*):ab,ti
9	((Dropout* or "Drop-out*") near/2 rate*):ab,ti
10	(Completion near/2 rate*):ab,ti
11	("Follow-up" or followup) near/2 rate*):ab,ti
12	(Incomplete near/2 ("follow-up" or followup)):ab,ti
13	(questionnaire* near/3 (response* near/2 method*)):ab,ti
14	(questionnaire* near/3 (response near/2 technique*)):ab,ti
15	("questionnaire response rate*"):ab,ti
16	((Strateg* or increas* or encourag* or maximi* or promot* or improv* or influenc* or success*) near/2 (questionnaire* near/3 response*)):ab,ti
17	((incentiv* or reminder*) near/3 (retention or retain or respon*e*)):ab,ti
18	retention near/4 training:ab,ti
19	"Trial site" near/2 (retention or retain*):ab,ti
20	Exp "Lost to Follow-Up"/
21	Exp Patient Dropouts/
22	("Patient retention" or Dropout* or "Drop*-out*" or attrition):kw
23	((survey* or questionnaire*) AND (respon*e* or return* or rate*)):ti
24	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23
25	Randomized controlled trial:pt
26	Controlled clinical trial:pt
27	Randomi*ed:ab,ti,kw
28	Placebo:ab,ti,kw
29	Randomly:ab,ti,kw
30	Trial*:ab,ti,kw
31	#25 OR #26 OR #27 OR #28 OR #29 OR #30
32	#24 AND #31 (limited to trials, reviews and jan 1900- dec 2017

Hand-searches

Systematic reviews categorised as 'randomised evaluations' of retention strategies were hand-searched for relevant records. The following reviews were searched:

1. Booker CL, Harding S, Benzeval M. A systematic review of the effect of retention methods in population-based cohort studies. *BMC Public Health*. 2011;11:249.
2. Boyle T, Heyworth J, Landrigan J, Mina R, Fritschi L. The Effect of Lottery Scratch Tickets and Donation Offers on Response Fraction: A Study and Meta-Analysis. *Field Methods*. 2012;24(1):112-32.
3. Brueton VC, Tierney J, Stenning S, Harding S, Meredith S, Nazareth I, et al. Strategies to improve retention in randomised trials. *Cochrane Database of Systematic Reviews*. 2013(12):MR000032.
4. David MC, Ware RS. Meta-analysis of randomized controlled trials supports the use of incentives for inducing response to electronic health surveys. *Journal of Clinical Epidemiology*. 2014;67(11):1210-21.
5. Edwards P, Roberts I, Sandercock P, Frost C. Follow-up by mail in clinical trials: does questionnaire length matter? *Controlled Clin Trials*. 2004;25(1):31-52.
6. Edwards PJ, Roberts I, Clarke MJ, Diguseppi C, Wentz R, Kwan I, et al. Methods to increase response to postal and electronic questionnaires. *Cochrane Database of Systematic Reviews*. 2009(3):MR000008.
7. Lacey RJ, Wilkie R, Wynne-Jones G, Jordan JL, Wersocki E, McBeth J. Evidence for strategies that improve recruitment and retention of adults aged 65 years and over in randomised trials and observational studies: a systematic review. *Age & Ageing*. 2017;46(6):895-903.
8. Nakash RA. A study of response and non-response to postal questionnaire follow-up in clinical trials. University of Warwick; 2007.
9. Robinson KA, Dinglas VD, Sukrithan V, Yalamanchilli R, Mendez-Tellez PA, Dennison-Himmelfarb C, et al. Updated systematic review identifies substantial number of retention strategies: using more strategies retains more study participants. *Journal of Clinical Epidemiology*. 2015;68(12):1481-7.
10. Rolstad S, Adler J, Rydén A. Response burden and questionnaire length: Is shorter better? A review and meta-analysis. *Value in Health*. 2011;14(8):1101-8.
11. Scott P, Edwards P. Personally addressed hand-signed letters increase questionnaire response: a meta-analysis of randomised controlled trials. *BMC Health Serv Res*. 2006;6:111.
12. Shih TH, Fan XT. Comparing response rates from Web and mail surveys: A meta-analysis. *Field Methods*. 2008;20(3):249-71.
13. VanGeest JB, Johnson TP. Using incentives in surveys of cancer patients: Do 'best practices' apply? *Cancer Causes & Control*. 2012;23(12):2047-52.