PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	3
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	5
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	4-5
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	N/A
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	9-10
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	9-10
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	9-10, S2
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	9-10
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	10
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	10
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	10
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	N/A
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	N/A

PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	N/A
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	N/A
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	9-10, 37
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	38-46
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	17, S4-6
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	N/A
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	N/A
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	N/A
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	N/A
DISCUSSION			
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	20-22
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	21-22
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	20-22
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	23

From: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit: **www.prisma-statement.org**.

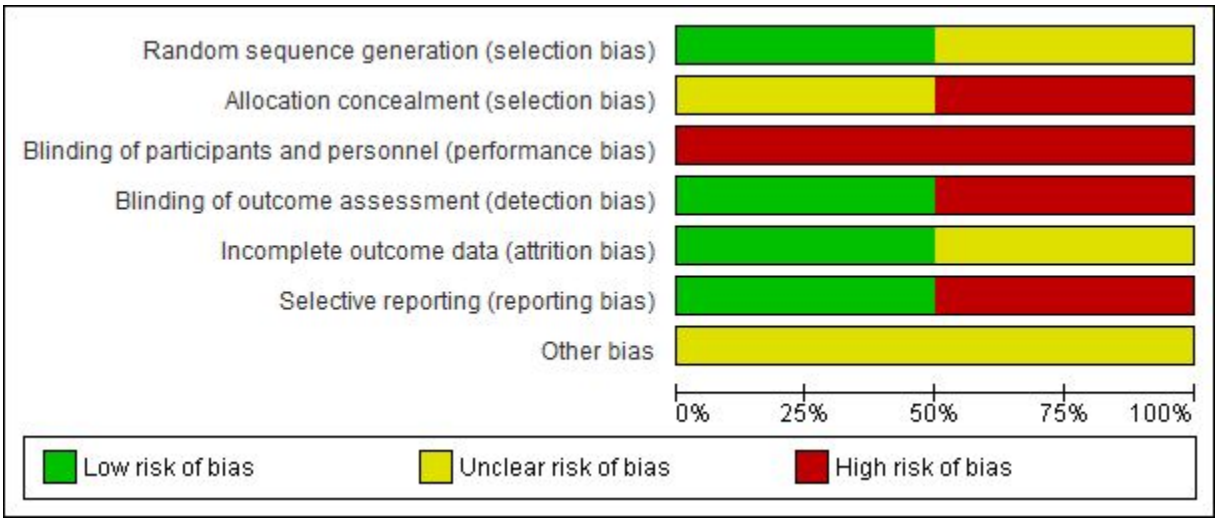
SEARCH STRATREGY (07/08/2019)

DATABASE	SEARCH TERMS	# SEARCHES
EMBASE	**507** **#10** #**8** AND #**9** **277,724** **#9** #**1** OR #**2** OR #**3** OR #**4** OR #**5** OR #**6** OR #**7** **143,911** **#8** **'systemic lupus erythematosus'**/exp OR **sle** OR **lupus** **8,459** **#7** **'smartphone'**/exp **37,240** **#6** **'mobile phone'** OR **'mobile phones'** OR **'smart phone'** OR **'smart phones'** OR **smartphone*** OR **mhealth** OR **'mobile app'** OR **'mobile apps'** OR **'mobile application'** OR **'mobile applications'** OR **'mobile device'** OR **'mobile devices'** **29** **#5** **'mhealth'**/exp **8,462** **#4** **'mobile application'**/exp **252,766** **#3** **'internet'**/exp OR **'internet'** OR **'web based'** OR **'mobile technology'**/exp OR **'mobile technology'** OR **'mobile technologies'** OR **'ehealth'**/exp OR **'ehealth'** OR **'wearable'** OR **'wearables'** OR **'ios'** OR **'android'**/exp OR **'android'** OR **'handheld'** **1,345** **#2** **'personal digital assistant'**/exp **102,888** **#1** **'internet'**/exp	507
WEB OF SCIENCE	# 3 **337** #2 AND #1 *Databases= WOS, BCI, BIOSIS, CSCD, CCC, DRCI, DIIDW, FSTA, KJD, MEDLINE, RSCI, SCIELO, ZOOREC Timespan=All years* *Search language=Auto* # 2 **2,035,747** **TOPIC:** (wearable* OR handheld OR internet OR "web based" OR "mobile technologies" OR "mobile technology" OR "ios" OR "android" OR "mobile device" OR "mobile devices" OR "mobile phone" OR "mobile phones" OR "mhealth" OR "app" OR "mobile application" OR "mobile applications" OR "apps" OR "smartphone" OR "smartphones" OR "ehealth") *Databases= WOS, BCI, BIOSIS, CSCD, CCC, DRCI, DIIDW, FSTA, KJD, MEDLINE, RSCI, SCIELO, ZOOREC Timespan=All years* *Search language=Auto* # 1 **217,719** **TOPIC:** (lupus OR SLE) *Databases= WOS, BCI, BIOSIS, CSCD, CCC, DRCI, DIIDW, FSTA, KJD, MEDLINE, RSCI, SCIELO, ZOOREC Timespan=All years* *Search language=Auto*	337
MEDLINE	1. telemedicine.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 2. eHealth.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 3. mHealth.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 4. mobile health.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 5. app.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 6. apps.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 7. mobile application$.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 8. mobile phone$.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 9. mobile device$.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 10. mobile technolog$.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh]	276

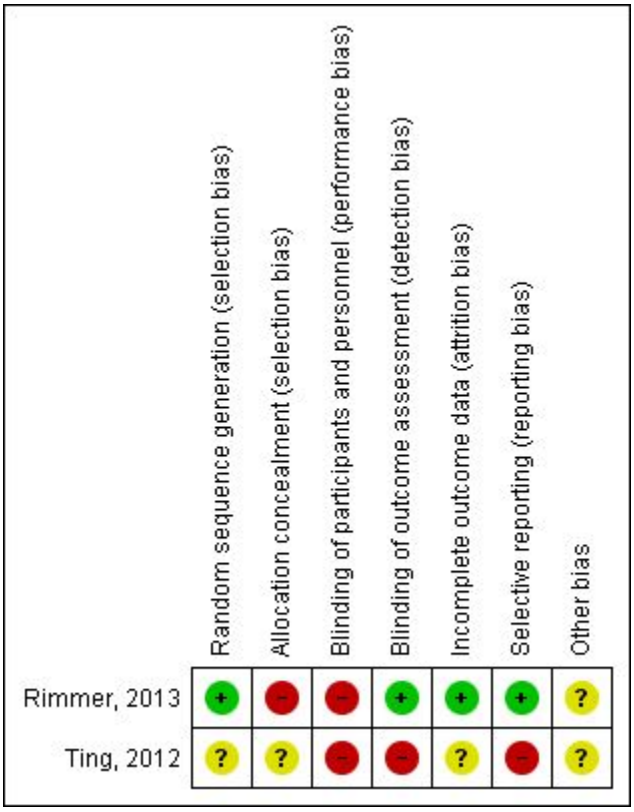
	11. m-health.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 12. e-health.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 13. smartphone$.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 14. wearable.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 15. handheld.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 16. internet.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 17. web-based.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 18. 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 19. exp "Computers, handheld"/ 20. exp "Internet"/ 21. exp "Health Information Systems"/ 22. exp "Wearable Electronic Devices"/ 23. exp "Mobile Applications"/ 24. exp "Smartphone"/ 25. exp "Technology"/ 26. exp "Telemedicine"/ 27. 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 28. lupus.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 29. lupus erythematosus.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 30. SLE.mp. [mp=ti, ab, ot, nm, hw, fx, kf, ox, px, rx, ui, sy, tx, kw, ct, sh] 31. exp "Lupus Erythematosus, Systemic"/ 32. 18 or 27 33. 28 or 29 or 30 or 31 34. 32 and 33 35. limit 34 to humans [Limit not valid in CDSR,CCTR; records were retained] remove duplicates from 35	
COCHRANE CENTRAL	Database: EBM Reviews - Cochrane Central Register of Controlled Trials <May 2019> Search Strategy: --- 1 (wearable* or handheld or internet or "web based" or "mobile technologies" or "mobile technology" or "ios" or "android" or "mobile device" or "mobile devices" or "mobile phone" or "mobile phones" or "mhealth" or "app" or "mobile application" or "mobile applications" or "apps" or "smartphone" or "smartphones" or "ehealth").mp. [mp=title, original title, abstract, mesh headings, heading words, keyword] (20824) 2 exp "Computers, Handheld"/ or exp "Internet"/ or exp "Health Information Systems"/ or exp "Wearable Electronic Devices"/ or "exp Mobile Applications"/ or exp "Smartphone"/ or exp "Technology"/ (8616) 3 1 or 2 (25653) 4 exp "Lupus Erythematosus, Systemic"/ (864) 5 (lupus or SLE).mp. [mp=title, original title, abstract, mesh headings, heading words, keyword] (3247) 6 4 or 5 (3247) 7 3 and 6 (26)	26

Total: 1146 results
Duplicate: 360

Supplementary File 3: Risk of Bias Distribution of the Included Randomized Trials



Supplementary File 4: Risk of Bias Assessments of the Included Randomized Trials



Supplementary File 5. Quality Ratings for Observational Studies (Newcastle Ottawa Quality Assessment)*

*Scale range 0 to 9, with higher scores indicating higher level of quality

Author, year	**Selection**				**Comparability†**	**Outcome**				
	1. Representativeness of exposed cohort	2. Selection of non-exposed cohort	3. Ascertainment of exposure	4. Demonstration that outcome of interest was not present at start of study	1. Comparability of cohorts on the basis of the design or analysis	1. Assessment of Outcome	2. Was follow up long enough for outcomes to occur?	3. Adequacy of follow up cohorts	**Total Score (out of 9)**	Cross sectional? (Y/N)
Richter, 2008/ 2009	1	1	1	1	0	0	1	1	6	Y
Rhee, 2013	1	0	0	1	0	1	1	1	5	Y
Callejas-Rubio, 2014	1	0	0	1	0	0	1	1	4	Y
Jamilloux, 2015	1	1	1	1	1	0	1	1	7	N
Meunier, 2016	1	0	1	1	0	0	1	1	5	N
Balderas-Diaz, 2017	0	1	1	1	0	1	1	1	6	N
Sciascia, 2017	1	1	0	0	0	1	1	1	5	N
Reynolds, 2018	1	0	0	0	0	1	1	1	4	Y
Scalzi, 2018	1	1	1	1	0	1	1	1	7	N

*Scale range 0 to 9, with higher scores indicating higher level of quality
†Maximum possible points are equal to 2