

Methodological aspects of design, analyses and reporting of studies with work participation as an outcome domain in patients with inflammatory arthritis: results of two systematic literature reviews informing EULAR points to consider

(Online Supplementary material)

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Online Supplementary Figure S1: Search strategies 1 and 2 according to the PICOT framework

	Search 1	Search 2
P opulation	Rheumatoid arthritis Axial Spondyloarthritis Psoriatic arthritis Juvenile idiopathic arthritis	Other chronic diseases*
I ntervention	<ul style="list-style-type: none"> • Pharmacological intervention • Non-pharmacological intervention • No intervention (natural course of the disease) 	
C omparator	<ul style="list-style-type: none"> • Any comparator 	
O utcome	<ul style="list-style-type: none"> • Work participation comprising: <ul style="list-style-type: none"> • Paid work: <i>work status</i> and if employed: <i>absenteeism & presenteeism</i> (work productivity, work ability, etc.) 	
T ime	<ul style="list-style-type: none"> • Any time of follow-up 	

Note: studies in IA assessing costs of changes in work participation were identified and included in order to assess whether volumes of work productivity (e.g. days, hours) were reported. *The most prevalent chronic diseases (i.e. Chronic obstructive pulmonary disease (COPD), Visual impairment and blindness, Cardiovascular diseases, Diabetes, Obesity and overweight, Deafness and hearing loss, Cancer, Oral health-related diseases, Alcohol dependency, Sickle-cell disease and other haemoglobin disorders) were included in accordance to the World Health Organization data provided in https://www.who.int/topics/chronic_diseases/factsheets/en/. For their relevance in relation to inflammatory arthritis also Inflammatory bowel diseases and Psoriasis were included.

Online Supplementary Text S1: Exclusion criteria**Search 1:** Articles in inflammatory arthritis

- Target population: children (except Juvenile Idiopathic Arthritis followed in adulthood).
- Study designs: cross-sectional, retrospective, case-control, narrative reviews.
- Mixed populations: different rheumatic diseases (RMDs) not analysed separately.
- Publication year: < 2014 (for feasibility purposes and with the rationale that the most recent studies will likely be of better methodological quality and better reflect current standards)

Search 2: Systematic literature reviews in other chronic diseases

- Target population: articles on RMDs and articles on psychiatric illnesses.
- Publication year: < 2014 (for feasibility purposes and with the rationale that the most recent studies will likely be of better methodological quality and better reflect current standards)

Online Supplementary Text S2: Search strategy for studies with work participation as an outcome domain in patients with inflammatory arthritis

MEDLINE (Ovid)

Dates searched: 1946 to April 24, 2019

- 1 exp arthritis, rheumatoid/
- 2 ((rheumatoid or reumatoid or rheumat\$ or reumat\$) adj3 (arthrit\$ or artrit\$ or diseas\$ or condition\$ or nodule\$)).tw.
- 3 (felty\$ adj2 syndrome).tw.
- 4 (caplan\$ adj2 syndrome).tw.
- 5 psoriatic arthritis/
- 6 (psoria\$ adj (arthriti\$ or arthropath\$)).tw.
- 7 ((arthriti\$ or arthropath\$) adj psoria\$).tw.
- 8 oligoarthriti\$.tw.
- 9 exp Spondylitis/
- 10 (ankylos\$ or spondyl\$).tw.
- 11 SpA.tw.
- 12 (bekhterev\$ or bechterew\$).tw.
- 13 Arthritis, Juvenile Rheumatoid/
- 14 (juvenile\$ adj3 arthrit\$).tw.
- 15 jia.tw.
- 16 exp ARTHRITIS/
- 17 arthrit\$.tw.
- 18 (still\$ adj disease).tw.
- 19 Polyarthrit\$.tw.
- 20 or/16-19
- 21 exp Child/
- 22 Adolescent/
- 23 child\$.tw.
- 24 adolesc\$.tw.
- 25 juvenile\$.tw.
- 26 teenage\$.tw.

27 youth\$.tw.
28 or/21-27
29 20 and 28
30 or/1-15,29
31 exp Employment/
32 Absenteeism/
33 Presenteeism/
34 Efficiency/
35 (work adj3 (hours lost or return or loss or impair\$ or incapab\$ or incapacity or instability or perform\$ or unpaid or voluntary or own-use)).tw.
36 (absent\$ or absence).tw.
37 ((employment or job or time) adj3 (loss or lost or missed or stopped)).tw.
38 presenteeism.tw.
39 (PROWD or RA-WIS).tw.
40 productivity.tw.
41 sick leave.tw.
42 unemploy\$.tw.
43 (workplace or workday\$ or working week\$ or workweek\$).tw.
44 or/31-43
45 30 and 44
46 randomized controlled trial.pt.
47 controlled clinical trial.pt.
48 randomized.ab.
49 placebo.ab.
50 drug therapy.fs.
51 randomly.ab.
52 trial.ab.
53 groups.ab.
54 or/46-53
55 exp cohort studies/
56 observational study.pt.
57 (cohort\$ or prospective\$ or observational or longitudinal or follow-up).tw.

- 58 case-control studies/
- 59 case-control.tw.
- 60 or/54-59
- 61 (animals not (humans and animals)).sh.
- 62 60 not 61
- 63 45 and 62

The Cochrane Library (www.thecochranelibrary.com)

Dates searched: April 26, 2019

- #1 MeSH descriptor: [Arthritis, Rheumatoid] explode all trees
- #2 ((rheumatoid or reumatoid or rheumat* or reumat*) near/3 (arthrit* or artrit* or diseas* or condition* or nodule*)):ti,ab
- #3 (felty* near/2 syndrome):ti,ab
- #4 (caplan* near/2 syndrome):ti,ab
- #5 MeSH descriptor: [Arthritis, Psoriatic] this term only
- #6 (psoria* NEXT (arthriti* or arthropath*)):TI,AB
- #7 ((arthriti* or arthropath*) NEXT psoria*):ti,ab
- #8 oligoarthriti*:ti,ab
- #9 MeSH descriptor: [Spondylitis] explode all trees
- #10 (ankylos* or spondyl*):ti,ab
- #11 spa:ti,ab
- #12 (bekhterev* or bechterew*):ti,ab
- #13 (juvenile* NEAR/3 arthrit*):ti,ab
- #14 jia:ti,ab
- #15 MeSH descriptor: [Arthritis] explode all trees
- #16 arthrit*:ti,ab
- #17 (still* NEXT disease):ti,ab
- #18 Polyarthrit*:ti,ab
- #19 #15 OR #16 OR #17 OR #18
- #20 MeSH descriptor: [Child] explode all trees
- #21 MeSH descriptor: [Adolescent] this term only
- #22 child*:ti,ab

- #23 adolesc*:ti,ab
- #24 juvenile*:ti,ab
- #25 teenage*:ti,ab
- #26 youth*:ti,ab
- #27 #20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26
- #28 #19 AND #27
- #29 #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 #28
- #30 MeSH descriptor: [Employment] explode all trees
- #31 MeSH descriptor: [Absenteeism] this term only
- #32 MeSH descriptor: [Presenteeism] this term only
- #33 (work NEAR/3 ("hours lost" or return or loss or impair* or incapab* or incapacity or instability or perform* or unpaid or voluntary or own-use)):ti,ab
- #34 (absent* or absence):ti,ab
- #35 ((employment or job or time) NEAR/3 (loss or lost or missed or stopped)):ti,ab
- #36 presenteeism:ti,ab
- #37 (PROWD or RA-WIS):ti,ab
- #38 productivity:ti,ab
- #39 "sick leave":ti,ab
- #40 unemploy*:ti,ab
- #41 (workplace or workday* or "working week*" or workweek*):ti,ab
- #42 #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40 OR #41
- #43 #29 AND #42

EMBASE (Embase.com)

Dates searched: 1980 to April 26, 2019

#60. #42 AND #58 AND ([article]/lim OR [article in press]/lim OR [review]/lim) AND [humans]/lim AND [embase]/lim

#59. #42 AND #58

#58. #43 OR #44 OR #45 OR #46 OR #47 OR #48 OR #49 OR #50 OR #51 OR #52 OR #53 OR #54 OR #55 OR #56 OR #57

#57. 'case control':ti,ab

#56. 'case control study'/exp

#55. cohort*:ti,ab OR prospective*:ti,ab OR observational:ti,ab OR longitudinal:ti,ab OR 'follow up':ti,ab

#54. 'observational study'/exp

#53. 'cohort analysis'/exp

#52. random*:ab,ti

#51. 'randomized controlled trial'/exp

#50. trial:ti

#49. allocat*:ab,ti

#48. (doubl* NEAR/2 blind*):ab,ti

#47. placebo*:ab,ti

#46. crossover*:ab,ti OR 'cross over*':ab,ti

#45. 'single-blind procedure'

#44. 'double blind procedure'/de

#43. 'crossover procedure'/de

#42. #28 AND #41

#41. #29 OR #30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37 OR #38 OR #39 OR #40

#40. workplace:ti,ab OR workday*:ti,ab OR 'working week*':ti,ab OR workweek*:ti,ab

#39. unemploy*:ti,ab

#38. 'sick leave':ti,ab

#37. productivity:ti,ab

#36. prowd:ti,ab OR 'ra wis':ti,ab

#35. presenteeism:ti,ab

#34. ((employment OR job OR time) NEAR/3 (loss OR lost OR missed OR stopped)):ti,ab

#33. absent*:ti,ab OR absence:ti,ab

#32. (work NEAR/3 ('hours lost' OR return OR loss OR impair* OR incapab* OR incapacity OR instability OR perform* OR unpaid OR voluntary OR 'own use')):ti,ab

#31. 'presenteeism'/de

#30. 'absenteeism'/de

#29. 'employment'/exp

#28. #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 #27

#27. #19 AND #26

#26. #20 OR #21 OR #22 OR #23 OR #24 OR #25

- #25. youth*:ti,ab
- #24. teenage*:ti,ab
- #23. juvenile*:ti,ab
- #22. adolesc*:ti,ab
- #21. child*:ti,ab
- #20. 'adolescent'/exp
- #19. #15 OR #16 OR #17 OR #18
- #18. polyarthrit*:ti,ab
- #17. still*:ti,ab AND next:ti,ab AND disease:ti,ab
- #16. arthrit*:ti,ab
- #15. 'arthritis'/exp
- #14. jia:ti,ab
- #13. (juvenile* NEAR/3 arthrit*):ti,ab
- #12. bekhterev*:ti,ab OR bechterew*:ti,ab
- #11. spa:ti,ab
- #10. ankylos*:ti,ab OR spondyl*:ti,ab
- #9. 'spondylitis'/exp
- #8. oligoarthriti*:ab,ti
- #7. ((arthriti* OR arthropath*) NEAR/2 psoria*):ti,ab
- #6. (psoria* NEAR/2 (arthriti* OR arthropath*)):ab,ti
- #5. 'psoriatic arthritis'/de
- #4. (caplan* NEAR/2 syndrome):ab,ti
- #3. (felty* NEAR/2 syndrome):ab,ti
- #2. ((rheumatoid OR reumatoid OR reumat* OR reumat*) NEAR/3 (arthrit* OR artrit* OR diseas* OR condition* OR nodule*)):ab,ti
- #1. 'rheumatoid arthritis'/exp

CINAHL (EBSCOhost)

Dates searched: 1982 to April 2019

S1 (MH "Arthritis, Rheumatoid+")

S2 TI (((rheumatoid OR reumatoid OR rheumat* OR reumat*) N3 (arthrit* OR artrit* OR diseas* OR condition* OR nodule*)) OR AB (((rheumatoid OR reumatoid OR rheumat* OR reumat*) N3 (arthrit* OR artrit* OR diseas* OR condition* OR nodule*))

S3 TI felty* N2 syndrome OR AB felty* N2 syndrome

S4 TI caplan* N2 syndrome OR AB caplan* N2 syndrome

S5 (MH "Arthritis, Psoriatic")

S6 TI (psoria* NEXT (arthriti* OR arthropath*)) OR AB (psoria* NEXT (arthriti* OR arthropath*))

S7 TI ((arthriti* OR arthropath*) NEXT psoria*) OR AB ((arthriti* OR arthropath*) NEXT psoria*)

S8 TI oligoarthriti* OR AB oligoarthriti*

S9 (MH "Spondylitis, Ankylosing")

S10 TI (ankylos* OR spondyl*) OR AB (ankylos* OR spondyl*)

S11 TI spa OR AB spa

S12 TI (bekhterev* OR bechterew*) OR AB (bekhterev* OR bechterew*)

S13 TI juvenile* N3 arthrit* OR AB juvenile* N3 arthrit*

S14 TI jia OR AB jia

S15 (MH "Arthritis+")

S16 TI arthrit* OR AB arthrit*

S17 TI still* NEXT disease OR AB still* NEXT disease

S18 TI Polyarthrit* OR AB Polyarthrit*

S19 S15 OR S16 OR S17 OR S18

S20 (MH "Child+")

S21 (MH "Adolescence+")

S22 TI child* OR AB child*

S23 TI adolesc* OR AB adolesc*

S24 TI juvenile* OR AB juvenile*

S25 TI teenage* OR AB teenage*

S26 TI youth* OR AB youth*

S27 S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26

S28 S19 AND S27

S29 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S28

S30 (MH "Employment+")

S31 (MH "Absenteeism")

S32 (MH "Presenteeism")

S33 TI ((work N3 ("hours lost" OR return OR loss OR impair* OR incapab* OR incapacity OR instability OR perform* OR unpaid OR voluntary OR own-use))) OR AB ((work N3 ("hours lost" OR return OR loss OR impair* OR incapab* OR incapacity OR instability OR perform* OR unpaid OR voluntary OR own-use)))

S34 TI (absent* or absence) OR AB (absent* or absence)

S35 TI (((employment or job or time) N3 (loss or lost or missed or stopped))) OR AB (((employment or job or time) N3 (loss or lost or missed or stopped)))

S36 TI presenteeism OR AB presenteeism

S37 TI (PROWD or RA-WIS) OR AB (PROWD or RA-WIS)

S38 TI productivity OR AB productivity

S39 TI "sick leave" OR AB "sick leave"

S40 TI unemploy* OR AB unemploy*

S41 TI (workplace OR workday* OR "working week*" OR workweek*) OR AB (workplace OR workday* OR "working week*" OR workweek*)

S42 S30 OR S31 OR S32 OR S33 OR S34 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40 OR S41

S42 S29 AND S42

S43 S29 AND S42 Limiters - Randomized Controlled Trials

S44 (MH "Nonexperimental Studies+")

S45 TI (cohort* OR prospective* OR observational OR longitudinal OR follow-up OR case-control) OR AB (cohort* OR prospective* OR observational OR longitudinal OR follow-up OR case-control)

S46 S44 OR S45

S47 S43 AND S46

S48 S43 OR S47

Online Supplementary Text S3: Search strategy for systematic literature reviews of studies with work participation as an outcome domain in patients with other chronic diseases

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Daily and Versions(R) <1946 to May 03, 2019>

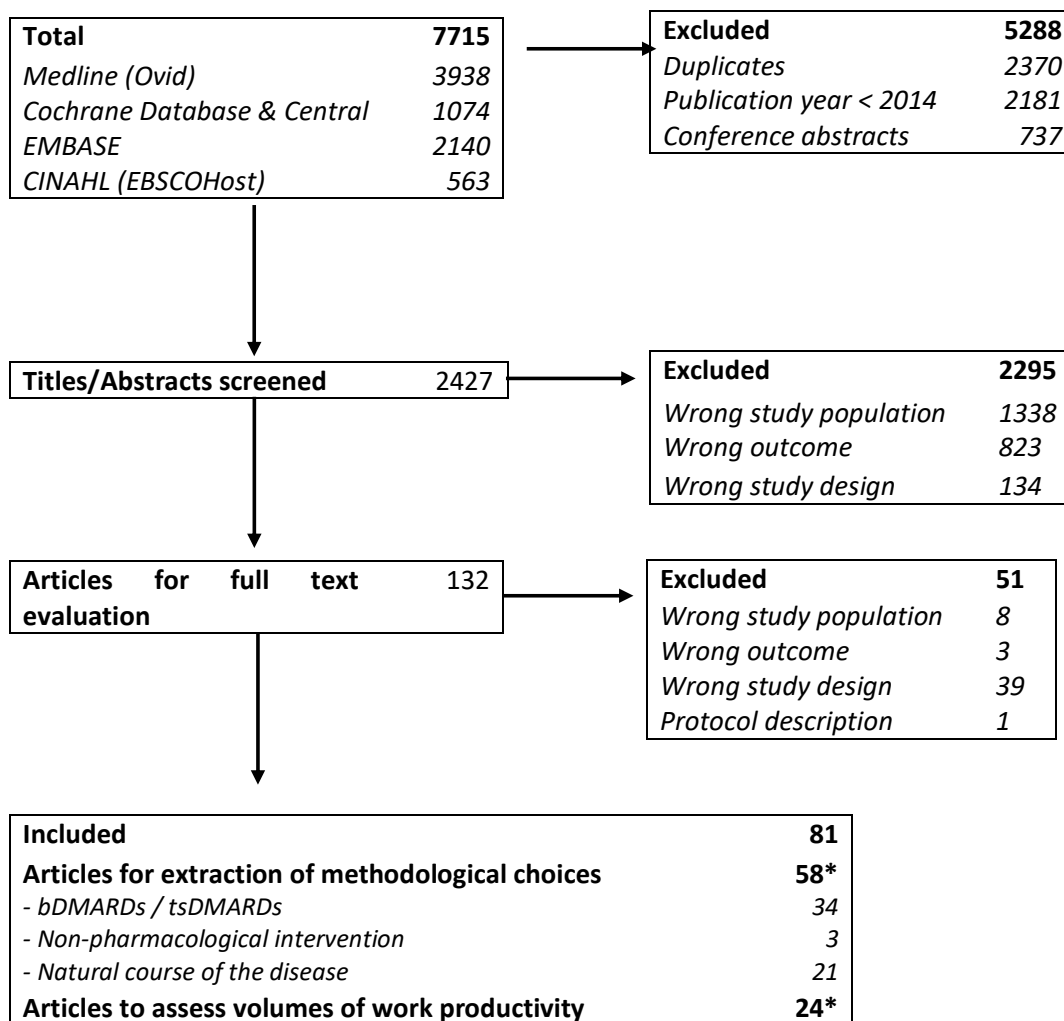
Search Strategy:

-
- 1 exp Employment/
 - 2 Absenteeism/
 - 3 Presenteeism/
 - 4 Efficiency/
 - 5 ((work or house\$) adj3 (hours lost or return or loss or impair\$ or incapab\$ or incapacity or instability or perform\$ or unpaid or voluntary or own-use)).tw.
 - 6 (absent\$ or absence).tw.
 - 7 ((employment or job or time) adj3 (loss or lost or missed or stopped)).tw.
 - 8 presenteeism.tw.
 - 9 (PROWD or RA-WIS).tw.
 - 10 productivity.tw.
 - 11 sick leave.tw.
 - 12 unemploy\$.tw.
 - 13 (workplace or workday\$ or working week\$ or workweek\$).tw.
 - 14 child care/
 - 15 (child\$ adj3 (care\$ or caring)).tw.
 - 16 or/1-15
 - 17 exp Chronic Disease/
 - 18 (chronic adj2 (condition\$ or illness\$ or disease\$ or disorder\$)).tw.
 - 19 (multimorbid\$ or mcc).tw.
 - 20 Alzheimer Disease/
 - 21 Alzheimer\$.tw.
 - 22 exp Arthritis/
 - 23 arthrit\$.tw.
 - 24 exp Asthma/
 - 25 asthma\$.tw.

- 26 exp Neoplasms/
27 cancer\$.tw.
28 neoplasm\$.tw.
29 carcinoma\$.tw.
30 lymphoma\$.tw.
31 (leukaemia or leukemia).tw.
32 exp Diabetes Mellitus/
33 (diabet\$ or prediabet\$).tw.
34 exp Epilepsy/
35 Epilep\$.tw.
36 exp Cardiovascular Diseases/
37 (cardiovasc\$ or cvd).tw.
38 exp Heart Diseases/
39 ((heart or cardiac or coronary or myocardial) adj2 (disease\$ or condition\$)).tw.
40 exp Hypertension/
41 (hypertens\$ or high blood pressure).tw.
42 exp Stroke/
43 (stroke\$ or cerebrovascular).tw.
44 exp Inflammatory Bowel Diseases/
45 (Inflammatory Bowel disease\$ or ibd).tw.
46 (crohn\$ or ulcerative colitis).tw.
47 exp Lupus Erythematosus, Systemic/
48 (lupus or sle).tw.
49 exp Overweight/
50 (obes\$ or overweight).tw.
51 Oral Health/
52 exp Dental Caries/
53 (oral health or tooth decay or dental caries).tw.
54 exp Pulmonary Disease, Chronic Obstructive/
55 (Chronic Obstructive Pulmonary Disease or copd).tw.
56 exp Vision Disorders/

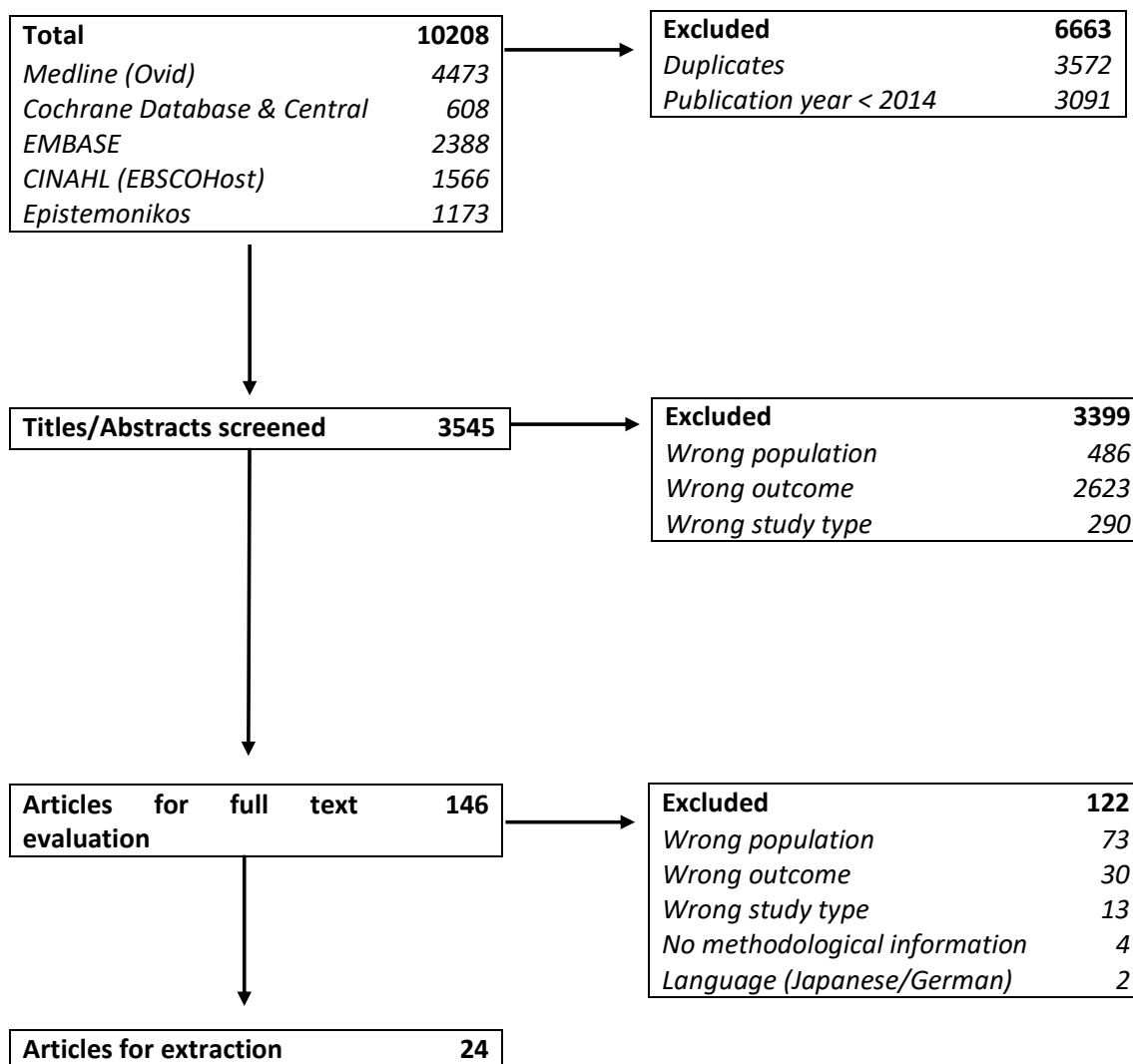
57 ((vision or visual\$) adj3 (disorder\$ or impair\$)).tw.
58 (blind or blindness).tw.
59 exp Hearing Loss/
60 (hearing adj3 (disorder\$ or loss)).tw.
61 deaf\$.tw.
62 exp Alcohol-Related Disorders/
63 alcohol\$.tw.
64 exp Anemia, Sickle Cell/
65 (sickle cell adj (disease or an?emia)).tw.
66 exp Psoriasis/
67 (psoriasis or Psoriatic).tw.
68 or/17-67
69 Meta-Analysis.pt.
70 systematic review.pt.
71 meta-analysis.sh.
72 (meta-analys\$ or meta analys\$ or metaanalys\$).tw,sh.
73 (systematic\$ adj5 review\$).tw,sh.
74 (systematic\$ adj5 overview\$).tw,sh.
75 (quantitativ\$ adj5 review\$).tw,sh.
76 (quantitativ\$ adj5 overview\$).tw,sh.
77 (quantitativ\$ adj5 synthesis\$).tw,sh.
78 (methodologic\$ adj5 review\$).tw,sh.
79 (methodologic\$ adj5 overview\$).tw,sh.
80 (integrative research review\$ or research integration).tw.
81 or/69-80
82 and/16,68,81
83 limit 82 to yr="2009 -Current"

Online Supplementary Figure S2: Flowchart of the search for studies with work participation as an outcome domain in patients with inflammatory arthritis



*Alemao et al.¹ provided information on methodological choices regarding the assessment of sick leave and also on volumes of work productivity.

Online Supplementary Figure S3: Flowchart of the search for systematic literature reviews of studies with work participation as an outcome domain in patients with other chronic diseases



Online Supplementary Table S1. Characteristics of included studies in inflammatory arthritis

Author, Year ^{Ref}	Disease	Study design	Intervention	Primary outcome	Outcome assessed	Outcome measurement instrument
Alemao E, 2018 ¹	RA	OBS	natural course of the disease	yes	WS, SL	number of workdays lost in the past year
Barnabe C, 2015 ²	RA	OBS	natural course of the disease	yes	P	VR-12
Bingham CO, 2014 ³	RA	RCT	bDMARD	no	P	VAS 10cm
Boer AC, 2018 ⁴	RA	OBS	natural course of the disease	no	SL, P	WPAI-RA & WPS-RA
Boonen A, 2018 ⁵	axSpA	OBS	bDMARD	yes	WS, SL, P	WPAI-AS
Boot C, 2018 ⁶	RA	OBS	natural course of the disease	yes	P	WLQ-25 PDmod
Castillo-Ortiz JD, 2016 ⁷	axSpA	OBS	natural course of the disease	no	WS	study-specific questionnaire
Claudepierre P, 2019 ⁸	axSpA	OBS	bDMARD	yes	SL, P	WPAI-AS
Combe B, 2015 ⁹	RA	OBS	natural course of the disease	no	SL	study-specific questionnaire
Cooksey R, 2015 ¹⁰	axSpA	OBS	natural course of the disease	no	SL, P	WPAI-AS
Deodhar AA, 2016 ¹¹	axSpA	RCT	bDMARD	no	SL, P	WPAI-GH
Dougados M, 2015 ¹²	axSpA	RCT	bDMARD	no	SL, P	WPAI-AS
Druce K, 2018 ¹³	RA, axSpA	OBS	natural course of the disease	no	SL, P	WPAI-SHP
Emery P, 2016 ¹⁴	RA	RCT	bDMARD	yes	WS, SL, P	WPAI-RA
Eriksson JK, 2016 ¹⁵	RA	RCT	bDMARD	no	SL	study-specific questionnaire
Espersen R, 2015 ¹⁶	RA	Registry	natural course of the disease	yes	WS	disability pension
Fleischmann R, 2016 ¹⁷	RA	RCT	bDMARD	no	SL, P	WPAI-RA
Gottlieb AB, 2018 ¹⁸	PsA	RCT	bDMARD	no	SL, P	WPAI-SHP
Haglund E, 2015 ¹⁹	axSpA, PsA	OBS	natural course of the disease	yes	SL, P	WPAI-AS
Hansen SM, 2016 ²⁰	RA	Registry	natural course of the disease	yes	SL	long-term sickness absence
Hansen SM, 2017 ²¹	RA	Registry	natural course of the disease	yes	WS, SL	long-term sickness absence and disability pension
He C, 2016 ²²	axSpA	OBS	non-pharmacological intervention	yes	WS, P	study-specific questionnaire
Hussain W, 2015 ²³	RA	OBS	bDMARD	yes	SL, P	WPAI-GH
Kaeley GS, 2018 ²⁴	RA	RCT	bDMARD	no	SL, P	WPAI-RA
Karpouzas GA, 2017 ²⁵	RA	OBS	natural course of the disease	no	SL, P	WPAI-GH
Karpouzas GA, 2018 ²⁶	RA	OBS	natural course of the disease	no	SL, P	WPAI-GH
Kavanaugh A, 2015 ²⁷	PsA	RCT	bDMARD	no	SL, P	WPS-PsA
Keystone EC, 2017 ²⁸	RA	RCT	tsDMARD	no	WS, SL, P	WPAI-RA
Machado DA, 2014 ²⁹	RA	RCT	bDMARD	no	SL, P	WPAI-RA
Maksymowuch WP, 2016 ³⁰	axSpA	RCT	bDMARD	no	SL, P	WPAI-GH
Manders SH, 2014 ³¹	RA	OBS	bDMARD	no	WS	study-specific questionnaire
McWilliams DF, 2014 ³²	RA	OBS	natural course of the disease	yes	WS	study-specific questionnaire

Author, Year ^{Ref}	Disease	Study design	Intervention	Primary outcome	Outcome assessed	Outcome measurement instrument
Muñoz-Fernández S, 2016 ³³	RA, axSpA	OBS	non-pharmacological intervention	yes	WS, SL, P	WPAI-GH
Nakagawa J, 2019 ³⁴	PsA	OBS	bDMARD	yes	SL, P	WPAI-PsA
Olofsson T, 2014 ³⁵	RA	Registry	natural course of the disease	yes	WS, SL	days of sick leave over a month
Olofsson T, 2016 ³⁶	RA	Registry	natural course of the disease	yes	SL	days of sick leave over a month
Olofsson T, 2017 ³⁷	RA	Registry	bDMARD	yes	SL	days of sick leave over a month
Olofsson T, 2018 ³⁸	RA	Registry	natural course of the disease	yes	SL	days of sick leave over a month
Rahman P, 2016 ³⁹	PsA	RCT	bDMARD	no	P	VAS 10 cm
Rendas-Baum R, 2017 ⁴⁰	RA	RCT	tsDMARD	no	SL, P	study-specific questionnaire
Shim J, 2018 ⁴¹	axSpA	OBS	bDMARD	no	WS, SL, P	WPAI-SHP
Smolen JS, 2017 ⁴²	RA	RCT	tsDMARD	no	WS, SL, P	WPAI-RA
Strand V, 2015 ⁴³	RA	RCT	bDMARD	no	WS, SL, P	WPAI-RA
Strand V, 2018 ⁴⁴	RA	RCT	bDMARD	no	SL, P	WPS-RA
Szántó S, 2016 ⁴⁵	PsA	OBS	bDMARD	no	SL, P	WPAI-SHP
Takeuchi T, 2017 ⁴⁶	RA	OBS	bDMARD	yes	SL, P	WPAI-RA
Tiipana-Kinnunen T, 2014 ⁴⁷	RA	OBS	natural course of the disease	yes	WS	study-specific questionnaire
Tillett W, 2017 ⁴⁸	PsA	OBS	bDMARD	yes	SL, P	WPAI-SHP
Tran-Duy A, 2015 ⁴⁹	axSpA	OBS	bDMARD	no	SL, P	VAS 10 cm
van der Heijde D, 2014 ⁵⁰	axSpA	RCT	bDMARD	no	WS, P	VAS 10 cm
van der Heijde D, 2018 ⁵¹	axSpA	RCT	bDMARD	no	SL, P	WPS-AS
Van Lunteren M, 2017 ⁵²	axSpA	OBS	natural course of the disease	yes	SL, P	WPAI-AS
Van Vilsteren M, 2017 ⁵³	RA	RCT	non-pharmacological intervention	yes	P	WLQ-25 PDmod
Wallman JK, 2017 ⁵⁴	axSpA	OBS	bDMARD	no	SL	work-loss days (insurance registry records) 360 days before and 720 after anti-TNF initiation
Webers C, 2018 ⁵⁵	axSpA	OBS	natural course of the disease	yes	SL	study-specific questionnaire
Wei JC, 2018 ⁵⁶	axSpA	RCT	bDMARD	no	SL, P	WPAI-SHP
Westhovens R, 2018 ⁵⁷	RA	OBS	bDMARD	yes	SL, P	WPS-RA
Wiland P, 2016 ⁵⁸	RA	RCT	bDMARD	no	SL, P	WPAI-RA

axSpA – Axial Spondyloarthritis; **AS** – ankylosing spondylitis; **bDMARD** – biologic disease modifying anti-rheumatic drugs; **GH** – general health; **OBS** – Observational studies; **P** – presenteeism; **PsA** – Psoriatic Arthritis; **RA** – Rheumatoid Arthritis; **RCT** – randomized controlled trials; **SL** – sick leave; **VAS** – visual analogic scale; **VR-12** - The Veteran's RAND 12 Item Health Survey; **SHP** - Specific Health Problem; **tsDMARD** – targeted synthetic disease modifying anti-rheumatic drugs; **WLQ-25** – Work Limitations Questionnaire 25-item; **WPAI** – work productivity and activity impairment; **WPS** – work productivity questionnaire; **WS** – work status.

Online Supplementary Table S2 – Included studies in inflammatory arthritis (Search 1) by the type of intervention and assessed work outcome domain

	Total (n=58)	RCT (n=22)	OBS (n=36)
	n (%)	n (%)	n (%)
Type of intervention			
Pharmacological intervention	34 (59)	21 (95) ^{3,11,12,14,15,17,18,24,27–30,39,40,42–44,50,51,56,58}	13 (36) ^{5,8,23,31,34,37,41,45,46,48,49,54,57}
Non-pharmacological intervention	3 (5)	1 (5) ⁵³	2 (6) ^{22,33}
Natural course of the disease	21 (36)	0 (0)	21 (58) ^{1,2,4,6,7,9,10,13,16,19–21,25,26,32,35,36,38,47,52,55}
Work outcome domains assessed			
Work is assessed as a primary outcome	26 (45)	2 (9) ^{14,53}	24 (67) ^{1,2,5,6,8,16,19–23,32–38,46–48,52,55,57}
Work status (only)	5 (9)	0 (0)	6 (17) ^{7,16,22,31,32,47}
Sick leave (only)	9 (16)	2 (9) ^{15,40}	7 (19) ^{9,20,36–38,54,55}
Presenteeism (only)	5 (9)	3 (14) ^{3,39,53}	2 (6) ^{2,6}
Both sick leave and presenteeism (no work status)	27 (47)	12 (55) ^{11,12,17,18,24,27,29,30,44,51,56,58}	15 (42) ^{4,8,10,13,19,23,25,26,34,45,46,48,49,52,57}
Both work status and sick leave (no presenteeism)	3 (5)	0 (0)	3 (8) ^{1,21,35}
Both work status and presenteeism (no sick leave)	1 (2)	1 (5) ⁵⁰	0 (0)
Work status and sick leave and presenteeism	7 (12)	4 (18) ^{14,28,42,43}	3 (8) ^{5,33,41}
Sick leave and/or presenteeism	52 (90)	22 (100) ^{3,11,12,14,15,17,18,24,27–30,39,40,42–44,50,51,53,56,58}	30 (83) ^{1,2,4–6,8–10,13,19–21,23,25,26,33–38,41,45,46,48,49,52,54,55,57}
Work status (any*)	17 (29)	5 (23) ^{14,28,42,43,50}	12 (33) ^{1,5,7,16,21,22,31–33,35,41,47}
Sick leave (any*)	46 (79)	18 (82) ^{11,12,14,15,17,18,24,27–30,40,42–44,51,56,58}	28 (78) ^{1,4,5,8–10,13,19–21,23,25,26,33–38,41,45,46,48,49,52,54,55,57}
Presenteeism (any*)	40 (69)	20 (91) ^{3,11,12,14,17,18,24,27–30,39,42–44,50,51,53,56,58}	20 (56) ^{2,4–6,8,10,13,19,23,25,26,33,34,41,45,46,48,49,52,57}

OBS – Observational studies; **RCT** – randomized controlled trials. *All studies that assessed this specific domain (alone and/or in combination with other work outcome domains).

Online Supplementary Table S3 – Included studies in inflammatory arthritis (Search 1) by frequency of assessment for each work outcome domain and by time horizon

	RCT	OBS
	n (%)	n (%)
Frequency of assessment (work status, n=17)	N=5	N=12
1 to 12 weeks	1 (20) ⁴³	1 (8) ²²
13 to 24 weeks	0 (0)	2 (17) ^{5,33}
> 24 weeks	0 (0)	2 (17) ^{31,41}
Variable ¹	4 (24) ^{14,28,42,50}	2 (17) ^{7,32}
Registry derived¶	0 (0)	5 (42) ^{1,16,21,35,47}
Frequency of assessment (sick leave, n=46)	N=18	N=28
1 to 12 weeks	7 (39) ^{12,24,29,40,43,44,56}	8 (29) ^{8,10,23,34,45,46,48,57}
13 to 24 weeks	0 (0)	4 (14) ^{5,13,33,49}
> 24 weeks	2 (11) ^{15,58}	6 (21) ^{4,19,25,26,41,52}
Variable ¹	9 (50) ^{11,14,17,18,27,28,30,42,51}	2 (7) ^{9,55}
Registry derived¶	0 (0)	8 (29) ^{1,20,21,35–38,54}
Frequency of assessment (presenteeism, n=40)	N=20	N=20
1 to 12 weeks	7 (35) ^{12,24,29,39,43,44,56}	8 (40) ^{8,10,23,34,45,46,48,57}
13 to 24 weeks	1 (5) ⁵³	4 (20) ^{5,13,33,49}
> 24 weeks	1 (5) ⁵⁸	7 (35) ^{4,6,19,25,26,41,52,58}
Variable ¹	11 (55) ^{3,11,14,17,18,27,28,30,42,50,51}	1 (5) ²
Time horizon (all studies, n=58)	N=22	N=36
≤ 6 months	10 (45)* ^{3,12,14,24,27,29,39,42,44,56}	4 (11) ^{8,23,34,48}
> 6-12 months	5 (23)* ^{11,14,28,30,53}	9 (25) ^{6,13,22,33,41,45,46,52,57}
> 12 months	8 (36) ^{15,17,18,40,43,50,51,58}	23 (64) ^{1,2,4,5,7,9,10,16,19–21,25,26,31,32,35–38,47,49,54,55}

OBS – Observational studies; **RCT** – randomized controlled trials.

¹ e.g. every 24 weeks in the first year of follow-up and yearly thereafter.

*Emery et al., 2016 has two different time horizons because this is a post hoc analysis of two trials: time horizon of 26 and 24 weeks for the Optimal Protocol for Treatment Initiation with Methotrexate and Adalimumab (OPTIMA) and PRevention Of Work Disability (PROWD) trials, respectively.

¶ Registry studies that assessed sick-leave days in social-security databases.

Online Supplementary Table S4. Characteristics of included systematic literature reviews of studies with work participation as an outcome domain in patients with other chronic diseases (Search 2, n=24)

Author, Year ^{Ref}	Disease	Work outcome domain [§]	Databases searched	N included studies	Search timeframe	Meta-analysis
Ashley KD, 2019 ⁵⁹	Stroke	Return to work	PubMed, CINAHL, and Scopus	19	2009-2018	No
Bijker R, 2018 ⁶⁰	Cancer	Any [#]	Pub-Med, EMBASE, PsycINFO, CINAHL, and the Cochrane Library	20	2000-2016	No
Bilodeau K, 2017 ⁶¹	Cancer	Return to work	Scopus, CINAHL, MEDLINE, Social Work Abstract, and PsycINFO	17	2005-2015	No
Büsch K, 2014 ⁶²	IBD	Employment status, work capacity, sick leave, disability pension, early retirement, overall activity impairment* and overall work impairment*	PubMed MEDLINE and EMBASE	45	up to June 2011 and updated in June 2013	No
Chow SL, 2014 ⁶³	Cancer	Return to work	MEDLINE, EMBASE, ProQuest, PubMed and ScienceDirect	27	1990-2013	No
Dujits SFA, 2014 ⁶⁴	Cancer	Return to work	MEDLINE, PsycINFO, EMBASE, and CINAHL	30	2000-2013	No
Edwards JD, 2017 ⁶⁵	Stroke	Return to work	MEDLINE and EMBASE	29	up to May 2016	No
Fong CJ, 2015 ⁶⁶	Cancer	Employment status and/or related outcomes (i.e. time out-of-work)	Academic One File, Academic Search Complete, Academic Source Complete, Business Source Complete, CINAHL Plus with Full Text, CIRRIE, Cochrane Central Registry of Controlled Trials, Ed Line and Electronic Texts in Education and Training, Education Full Text, ERIC, Professional Development Collection, ProQuest, ProQuest Dissertations & Theses, PsycINFO, Psychology and Behavioral Sciences Collection, PubMed, Science and Technology Collection, Sociological Abstracts, Web of Science, The Campbell Collaboration, World Cat [for monographs], MEDLINE, EMBASE, OSH-ROM, DARE, ClinicalTrials.gov, Trialregister.nl, Controlled-trials.com	12	1973-2013	Yes
Kamal KM, 2017 ⁶⁷	Cancer	Work productivity	MEDLINE, Cochrane, Scopus, and CINAHL	62	up to January 2016	No
McLennan V, 2019 ⁶⁸	Cancer	Return to work	MEDLINE, EMBASE, Scopus, Cochrane Library, CINAHL and PsycINFO	47	up to March 2018	No

Author, Year ^{Ref}	Disease	Work outcome domain [§]	Databases searched	N included studies	Search timeframe	Meta-analysis
McQueen J, 2016 ⁶⁹	Cancer	Return to work	MEDLINE, EMBASE, CINAHL, PsycINFO; Clinical Trials.gov, Trial register.nl, and controlled.trials.com.	3	up to June 2015	Yes
Miller PSJ, 2016 ⁷⁰	Nocturia	Work productivity	MEDLINE (PubMed), EMBASE, EconLit, Cochrane Database of Systematic Reviews, the American College of Physicians Journal Club, and DARE	83	end date not specified	No
Paltrinieri S, 2018 ⁷¹	Cancer	Return to work	MEDLINE, CINAHL, EMBASE, PsycINFO, and the Cochrane Library (all databases)	12	2010-2018	No
Patel JG, 2014 ⁷²	COPD	Work productivity and indirect costs	Medline, Scopus, and OvidSP	11	2000-2012	No
Rai KK, 2018 ⁷³	Cancer	Employment, absenteeism and presenteeism	CINAHL, EMBASE, MEDLINE and the Cochrane Library databases	44	1973-2017	No
Sharples AJ, 2017 ⁷⁴	Obesity	Any [#]	MEDLINE, EMBASE, The Cochrane Library and NHS Evidence	10	up to November 2015	Yes
Soejima T, 2016 ⁷⁵	Cancer	Work performance	MEDLINE, CINAHL and PsycINFO	26	up to March 2015	No
Stone DS, 2017 ⁷⁶	Cancer	Any [#]	PubMed, CINAHL, and PsycINFO	23	up to January 2016	No
Sun Y, 2017 ⁷⁷	Cancer	Return to work	CINAHL, MEDLINE, SCOPUS, and PubMed	25	2004-2014	No
Tavan H, 2019 ⁷⁸	Cancer	Return to work	PubMed, Scopus, SID, Google, Elsevier, Google Scholar, and Web of Sciences	7	2007-2017	Yes
Vayr F, 2018 ⁷⁹	Obesity	Return to work	PubMed and Web of Science	18	2000-2017	No
Vayr F, 2019 ⁸⁰	Cancer	Employment status	MEDLINE	23	2000-2018	No
Wang L, 2018 ⁸¹	Cancer	Employment status	MEDLINE, EMBASE, CINAHL, and PsycINFO	24	up to March 2017	Yes
Wei XJ, 2016 ⁸²	Stroke	Return to work	MEDLINE, CINAHL and PubMed	10	2004-2014	No

§As defined by Authors; #Not restricted, not specified upfront; *As measured with the Work Productivity and Activity Impairment: Crohn's Disease (WPAI:CD).

CINAHL – Cumulative Index of Nursing and Allied Health Literature; **CIRRIE** – Center for International Rehabilitation Research Information and Exchange Database; **COPD** – chronic obstructive pulmonary diseases; **DARE** – Database of Abstracts of Reviews of Effects; **ERIC** – Education Resources Information Center; **IBD** – inflammatory bowel diseases; **OSH-ROM** – Occupational Safety and Health.

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