

Supplementary data**Search strategy PubMed**

#1 Arthritis, Rheumatoid[Mesh]
 #2 (rheumatoid[Title/Abstract]
 OR reumatoid[Title/Abstract] OR
 rheumat*[Title/Abstract] OR reumat*[Title/
 Abstract]) AND (arthrit*[Title/Abstract]
 OR artrit*[Title/Abstract] OR diseas*[Title/
 Abstract] OR condition*[Title/Abstract]
 OR nodule*[Title/Abstract])
 #3 felty*[Title/Abstract] AND
 syndrome[Title/Abstract]
 #4 caplan*[Title/Abstract] AND
 syndrome[Title/Abstract]
 #5 #1 OR #2 OR #3 OR #4
 #6 Frail elderly[MeSH Terms]
 #7 frail*[Title/Abstract]
 #8 "pre frail"[Title/Abstract] OR pre-
 frail[Title/Abstract] OR prefrail[Title/Ab-
 stract]
 #9 vulnerab*[Title/Abstract]
 #10 geriatric*[Title/Abstract]
 #11 #6 OR #7 OR #8 OR #9 OR #10
 #12 #5 AND #11 from 2001 – 2021

Search strategy Embase

#13. #12 AND (2001:py OR 2002:py OR
 2003:py OR 2004:py OR 2005:py OR
 2006:py OR 2007:py OR 2008:py OR
 2009:py OR 2010:py OR 2011:py OR

2012:py OR 2013:py OR 2014:py OR
 2015:py OR 2016:py OR 2017:py OR
 2018:py OR 2019:py OR 2020:py OR
 2021:py)
 #12. #5 AND #11
 #11. #6 OR #7 OR #8 OR #9 OR #10
 #10. geriatric*:ab,ti
 #9. vulnerab*:ab,ti
 #8. 'pre frail':ab,ti OR prefrail*:ab,ti
 #7. frail*:ab,ti
 #6. 'frailty'/de
 #5. #1 OR #2 OR #3 OR #4
 #4. (caplan* NEAR/2 syndrome):ab,ti
 #3. (felty* NEAR/2 syndrome):ab,ti
 #2. ((rheumatoid OR reumatoid OR rheu-
 mat* OR reumat*) NEAR/2 (arthrit* OR
 artrit* OR diseas* OR condition* OR
 nodule*)):ab,ti
 #1. 'rheumatoid arthritis'/exp

Search strategy CINAHL

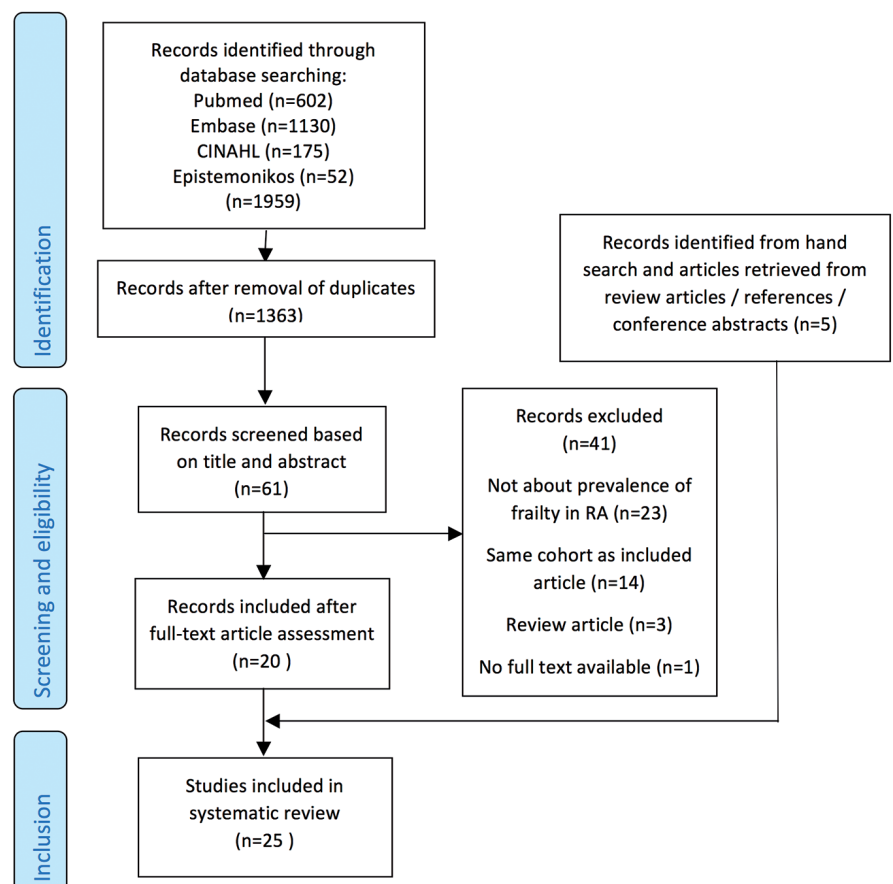
S1 (MH "Arthritis, Rheumatoid+")
 S2 TI (((rheumatoid OR reumatoid OR
 reumat* OR reumat*) N2 (arthrit* OR
 artrit* OR diseas* OR condition* OR nod-
 ule*))) OR AB (((rheumatoid OR reuma-
 toid OR reumat* OR reumat*) N2 (ar-
 thrit* OR artrit* OR diseas* OR condition*
 OR nodule*)))
 S3 TI felty* N2 syndrome OR AB felty*
 N2 syndrome

S4 TI caplan* N2 syndrome OR AB ca-
 plan* N2 syndrome
 S5 S1 OR S2 OR S3 OR S4
 S6 (MH "Frailty Syndrome")
 S7 TI Frail* OR AB Frail*
 S8 TI ("pre frail" OR pre-frail OR prefrail
) OR AB ("pre frail" OR pre-frail OR pre-
 frail)
 S9 TI vulnerab* OR AB vulnerab*
 S10 TI geriatric* OR AB geriatric*
 S11 S6 OR S7 OR S8 OR S9 OR S10
 S12 S5 AND S11 Published Date:
 20010101-20211231

Search strategy Epistemonikos

#1 (title:(rheumatoid OR reuma-
 toid OR reumat* OR reumat*) OR
 abstract:(rheumatoid OR reumatoid OR
 reumat* OR reumat*)) AND (title:(arthrit*
 OR artrit* OR diseas* OR condition* OR
 nodule*) OR abstract:(arthrit* OR artrit*
 OR diseas* OR condition* OR nodule*))
 #2 (title:(caplan* OR felty*) OR
 abstract:(caplan* OR felty*))
 #3 #1 OR #2
 #4 (title:(frail* OR "pre frail" OR pre-frail
 OR prefrail OR vulnerab* OR geriatric*)
 OR abstract:(frail* OR "pre frail" OR pre-
 frail OR prefrail OR vulnerab* OR geriat-
 ric*))
 #5 #3 AND #4 from 2001 to 2021

Supplementary Fig. S1. PRISMA flow diagram of the literature screening process.
 PRISMA: Preferred Reporting Items for Systematic reviews and Meta-Analyses.



Supplementary Table S1. Used frailty instruments in included studies.

Frailty instrument	Studies
Fried criteria (modified)	Andrews, 2019 (10); Barile, 2016 (12); Cook, 2021 (14); Furuya, 2021 (15); Santo, 2018 (27); Sundaram, 2020 (28); Trujillo, 2017 (31); Wysham, 2020 (32); Yoshii, 2020 (33)
Tilburg Frailty Indicator (TFI)	Bak, 2020 (11)
Groningen Frailty Indicator (GFI)	Cleutjens, 2021 (13); Oetsma, 2020 (6)
Frailty Index	Cook, 2021 (14); Hanlon, 2020 (17); Li, 2019 (20)
Survey of Health, Ageing and Retirement in Europe Frailty Index (SHARE-FI)	Haider, 2019 (16); Salaffi, 2019 (24); Salaffi, 2020 (25)
Qfrailty categories	Hippisley, 2017 (18)
Kihon checklist	Kojima, 2020 (19); Ozeki, 2021 (23); Tada, 2019 (29)
Frailty scale	Lieber, 2019 (21)
Study of Osteoporotic fracture (SOF) criteria	Minamino, 2021 (22)
Geriatric-8	Oetsma, 2020 (6)
Comprehensive Rheumatologic Assessment of Frailty (CRAF)	Salaffi, 2020 (25); Salaffi, 2021 (26)
Edmonton Frail Scale	Tanski, 2021 (30)

Supplementary Table S2. Risk of bias, Newcastle Ottawa Scale (NOS) adapted for cross-sectional studies (9).

Author, publication year	Representativeness of the sample (0-1)	Sample size (0-1)	Ascertainment of exposure* (0-2)	Non -respondents specified (0-1)	Comparability** (0-2)	Assessment of outcome (0-2)	Statistical test (0-1)	Total NOS (0-10)
Andrews, 2019 (10)	0	0	1	0	2	2	1	6
Bak, 2020 (11)	0	0	1	0	2	2	1	6
Barile, 2016 (12)	0	0	1	0	0	2	1	4
Cleutjens, 2021 (13)	0	0	1	0	2	2	1	6
Cook, 2021 (14)	0	0	1	0	2	2	1	6
Furuya, 2021 (15)	1	0	1	0	2	1	1	6
Haider, 2019 (16)	0	0	1	0	2	2	1	6
Hanlon, 2020 (17)	0	0	1	0	2	2	1	6
Hippisley, 2017 (18)	0	0	1	0	0	2	1	4
Kojima, 2020 (19)	0	0	1	1	2	2	1	7
Li, 2019 (20)	0	0	1	0	2	2	1	6
Minamino, 2021 (22)	0	0	1	0	2	2	1	6
Oetsma, 2020 (6)	0	0	1	0	2	2	1	6
Ozeki, 2021 (23)	0	0	1	0	2	2	1	6
Salaffi, 2019 (24)	0	0	1	0	2	2	1	6
Salaffi, 2020 (25)	0	0	2	0	2	2	1	7
Salaffi, 2021 (26)	0	0	2	0	2	2	1	7
Tada, 2019 (29)	0	0	1	0	2	2	1	6
Tanski, 2021 (30)	0	0	1	0	2	2	1	6
Wysham, 2020 (32)	0	0	1	0	2	2	1	6
Yoshii, 2020 (33)	0	0	1	0	2	2	1	6

*Except for the Comprehensive Rheumatologic Assessment of Frailty (CRAF) (25, 26), none of the frailty assessment instruments are validated specifically in a RA population. Some of the instruments were modified specifically for the study.

**Studies scored positive on this item if they studied factors such as age, body mass index, disease activity, overall functioning, polypharmacy, comorbidities, quality of life, in relation to frailty. Newcastle Ottawa Scale (NOS) adapted for cross-sectional studies: the following cut-off points were used: >7 was considered low risk, 5–7 moderate risk and <5 high risk of bias (9).