

**Control/Tracking Number:** 22-A-336-BSR

**Activity:** Abstract

**Current Date/Time:** 8/27/2021 8:50:50 AM

## **Patient Reported Outcome Measures for Rheumatoid Arthritis Disease Activity: a systematic review following COSMIN guidelines**

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### **Abstract:**

**Background/Aims:** The standard measurement instruments for assessing Rheumatoid Arthritis (RA) disease activity (DA) are the Disease Activity Score with 28-Joint Count, Simple Disease Activity Index and Clinical Disease Activity Index, which all require a laboratory test and a joint count undertaken by a health care professional. The current standard of care in RA is "Treat-to-Target", in which regular assessment of RA DA is an integral part. Few healthcare providers have the capacity to assess patients as frequently as stipulated by NICE or EULAR guidelines and thus treatment is not adjusted sufficiently. The SARS-COV-2 pandemic has made the problem more conspicuous with remote rather than face-to-face consultations. Previous research has suggested that Patient Reported Outcome Measures (PROMs) are the most informative way to assess RA DA, and that they allow for a more efficient use of NHS resource. We therefore aimed to assess all PROMs for RA DA against the internationally recognised COSMIN guidelines for rating PROMs.

**Methods:** PROSPERO registered as CRD42020176176. This review built on a previous systematic review in the same area, with the PubMed and EMBASE searches expanded to include all articles up to January 2019 (rather than the previous June 2014 date) and those before January 1994. Some articles from the previous review were excluded as they involved biomarker and/or healthcare professional assessments. All identified articles were rated by two independent researchers, where identified PROMs were assessed for Content validity, Quality of Measurement property and related Risk of bias following the COSMIN guidelines, leading to recommendations for use.

**Results:** 702 abstracts were retrieved: 310 from both PubMed and EMBASE, 230 from PubMed alone and 162 from EMBASE alone. 34 from the previous review were given full article review, of which 21 were included in the final selection. Of the remaining 668, 128 were selected for abstract review; 58 for full article review; and 10 for the final selection, giving 31 articles in total. 10 PROMs were identified: RADAI, RADAI-SF, RADAI5, PDAS2, PAS, PAS-II, RAPID3, RAPID4, PRO-CLARA and GAS. Following the application of COSMIN guidelines to these 31 articles, none of the identified PROMs could be recommended for use, as none had sufficient evidence for content validity. 5 PROMs had the potential to be recommended but the other 5 could not be

recommended.

**Conclusion:** The lack of content validity is a major drawback for these PROMs, but it is worth noting that all of these were developed before the COSMIN guidelines were created, and COSMIN have only recently updated their guidelines to increase the relevance of content validity. A 2019 American College of Rheumatology review recommended two of the identified PROMs based on different criteria. Future research on PROMs for RA DA must look to evidence content validity.

Author Disclosure Information:

**T. Pickles:** None. **M. Horton:** None. **K. Christensen:** None. **R. Phillips:** None. **D. Gillespie:** None. **R. Macefield:** None. **O. Aiyegbusi:** None. **C. Beecher:** None. **E. Choy:** None.  
**Previous Publication (Complete):**

**Has this work been previously published, is being considered for publication or presented at another conference?** : Yes

**If yes please list the publications/ conferences where this work has been submitted or presented.** : ISOQOL, UK PROMs Research Conference, ACR

**Category (Complete):** Epidemiology and outcome research

**Keyword (Complete):** Rheumatoid Arthritis Disease Activity ; Patient Reported Outcome Measures ; systematic review

**Funding and Disclosures (Complete):**

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**Funding:** Yes

**If yes, please give name of funder(s)** : Tim Pickles is supported by a National Institute of Health Research (NIHR) Doctoral Fellowship, funded by the Welsh Government through Health and Care Research Wales (NIHR-FS-19). The systematic review was funded via a Health and Care Research Wales Pathway to Portfolio Grant. This work was supported by the MRC-NIHR Trials Methodology Research Partnership (MR/S014357/1).

**Additional (Complete):**

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**Is this abstract related to:** Adult rheumatology

**Status:**

Finalized