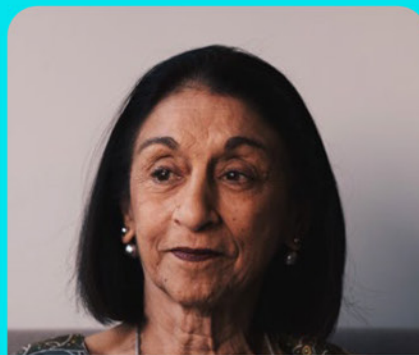




National Early Inflammatory Arthritis (NEIA) Audit

A short report on ethnicity
supplementary data report



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NEIAA short report on ethnicity supplementary report

Data collection

Rheumatology clinicians collect the following baseline information for all patients in NEIAA: age, gender, employment status (paid employment for patients aged 16–65 years working >20 h/week), smoking status (current smoker, ex-smoker, never smoker, not known), referral via the EIA pathway, working diagnosis (rheumatoid arthritis, psoriatic arthritis, axial spondyloarthritis, crystal arthritis, connective tissue disease, osteoarthritis, fibromyalgia, reactive arthritis, undifferentiated arthritis, mechanical back pain, other) and patient follow-up eligibility as a result of a confirmed EIA diagnosis. They also collect rheumatoid factor (RhF) and anti-citrullinated c-peptide antibody (CCP) seropositivity status. Data are also collected for all the statements from [NICE QS33](#).

Performance against NICE Q33 quality statements and clinical outcomes

This report focuses on performance against the [NICE QS33](#) quality statements and clinical outcomes over the first three months of specialist care. The clinical outcomes are defined as follows:

Clinician-reported outcomes:

Markers of disease activity were recorded by clinicians at each time point, including tender joint count (TJC; 0–28 joints), swollen joint count (SJC; 0–28 joints), patient-reported global assessment score (PGA 0–100 scale, from best to worst), CRP (mg/l) and/or ESR (mm/h). These were used to calculate a Disease Activity Score-28 joints (DAS-28) and the score was categorised to reflect remission (0 to <2.6), low disease activity (2.6 to \leq 3.2), moderate disease activity (>3.2 to \leq 5.1) and high disease activity (>5.1). European League Against Rheumatism (EULAR) disease response data were reported using the change in DAS28 categories of good response (>1.2), moderate response (>0.6 to \leq 1.2), and no response (\leq 0.6). Treatment strategy and corticosteroid use (steroids at baseline) were also reported.

NEIAA short report on ethnicity supplementary report

Patient-reported outcome measures (PROMs):

- Physical function: assessed using the Health Assessment Questionnaire Disability Index (HAQ-DI) – where a minimum clinically important difference (MCID) of 0.22 is used.
- Mental health (MH): assessed using the Patient Health Questionnaire (PHQ-2) and Generalized Anxiety Disorder scale (GAD-2) combined score. Significant MH comorbidity (i.e. a likely diagnosis of anxiety or depression is present) is defined if a response is >2 on either PHQ or GAD.
- Disease impact: assessed using the Musculoskeletal Health Questionnaire (MSK-HQ). MSK-HQ is a 15-item questionnaire that evaluates how musculoskeletal symptoms affect day-to-day life. Scores range from 0–56, higher scores indicating better MSK health. No MCID is defined for this tool.
- Work impairment: evaluated using the Work Productivity and Activity Index (WPAI) overall impairment score, which incorporates absenteeism (percentage of work hours missed in relation to total hours worked) and presenteeism (extent by which patient’s work productivity was affected by their health).

Statistical approach and significance

For this report, patient characteristics are tabulated according to ethnic groups. For continuous measures, data were described as medians and interquartile ranges (IQR). For categorical measures, absolute number and percentages were used. P-values are not presented for baseline characteristics to avoid inferences based upon a high number of hypothesis tests being conducted.

Our primary objective was to evaluate the association between ethnicity and three months’ remission. Logistic regression was used to analyse these relationships as well as for secondary objectives describing the association between ethnic groups, performance against the NICE quality statements, and disease outcomes at three months. Models were adjusted for age, gender, smoking, comorbidity, and disease severity at presentation. Sensitivity analyses using a multi-level model incorporated the effect of the treating hospital as a random effect.

Data are presented as odds ratio (OR) and 95% confidence intervals (CI) in all logistic regression analysis. P-values of <0.05 were considered statistically significant.

In summary, the differences noted in this report are all statistically significant, even if they seem small. A combination of all the individual DAS components explains the differences in disease state.

All statistical analyses were performed using Stata version 17.1 (StataCorp, College Station, TX, USA).

Information governance and data storage, security and transfer

This audit operates under Section 251 approval from the Confidentiality Advisory Group (CAG) of the Health Research Authority (HRA) (CAG approval number 18/CAG/0063). A record of the approval can be found at www.hra.nhs.uk/planning-and-improving-research/application-summaries/confidentiality-advisory-group-registers/

Data table 1

Baseline socio-demographic and clinical characteristics

All patients	Total	White	Black, Asian and ethnic minority
	N=35,807	N=30,643	N=5164
Age: median (IQR)	55 (42, 67)	56 (44, 68)	48 (37, 58)
Age-band: n (%)			
16–24	1226 (3.4%)	1004 (3.3%)	222 (4.3%)
25–39	6188 (17.3%)	4888 (16.0%)	1300 (25.2%)
40–64	18,024 (50.3%)	15,132 (49.4%)	2892 (56.0%)
65–74	6081 (17.0%)	5564 (18.2%)	517 (10.0%)
75 and over	4286 (12.0%)	4053 (13.2%)	233 (4.5%)
Gender: n (%)			
Male	12,307 (34.4%)	10,926 (35.7%)	1381 (26.7%)
Female	23,500 (65.6%)	19,717 (64.3%)	3783 (73.3%)
Patient in paid work >20h/week: n (%)			
No	17,336 (50.6%)	14,903 (50.7%)	2433 (49.6%)
Yes	16,941 (49.4%)	14,466 (49.3%)	2475 (50.4%)
Smoking status: n (%)			
Current smoker	6053 (16.9%)	5502 (18.0%)	551 (10.7%)
Ex-smoker	8920 (24.9%)	8376 (27.3%)	544 (10.5%)
Never smoked	16,873 (47.1%)	13,524 (44.1%)	3349 (64.9%)
Not known	3961 (11.1%)	3241 (10.6%)	720 (13.9%)
Duration Symptoms: n (%)			
<1 month	2687 (7.8%)	2337 (7.9%)	350 (7.0%)
1–3 months	9009 (26.0%)	7783 (26.3%)	1226 (24.7%)
3–6 months	6774 (19.6%)	5798 (19.6%)	976 (19.6%)
6–12 months	6454 (18.6%)	5568 (18.8%)	886 (17.8%)
1–5 years	6801 (19.6%)	5699 (19.2%)	1102 (22.2%)
5–10 years	1705 (4.9%)	1439 (4.9%)	266 (5.4%)
>10 years	1186 (3.4%)	1022 (3.4%)	164 (3.3%)
Referral via EIA pathway: n (%)	23,431 (67.1%)	19,818 (66.4%)	3613 (71.3%)
What is your working diagnosis: n (%)			
Rheumatoid Arthritis	9570 (28%)	8293 (28%)	1277 (26%)
Psoriatic Arthritis	2747 (8%)	2469 (8%)	278 (6%)
Axial Spondyloarthritis	826 (2%)	716 (2%)	110 (2%)
Crystal Arthritis	1218 (4%)	1105 (4%)	113 (2%)
Connective Tissue Disease	479 (1%)	353 (1%)	126 (3%)
Osteoarthritis	6346 (19%)	5558 (19%)	788 (16%)
Fibromyalgia	1322 (4%)	1112 (4%)	210 (4%)
Reactive Arthritis	890 (3%)	777 (3%)	113 (2%)
Undifferentiated Arthritis	3443 (10%)	2995 (10%)	448 (9%)
Other	6846 (20%)	5517 (19%)	1329 (27%)
Mechanical Back Pain	391 (1%)	319 (1%)	72 (1%)
Patient eligible for follow up: n (%)			
No	10,381 (44%)	8588 (43%)	1793 (52%)
Yes	12,955 (56%)	11,315 (57%)	1640 (48%)

Data table 1

Baseline socio-demographic and clinical characteristics

All patients	Total	White	Black, Asian and ethnic minority
EIA-eligible for follow up	N=12,955	N=11,315	N=1640
Age: median (IQR)	58 (46, 70)	59 (47, 71)	49 (39, 60)
Age-band: n (%)			
16–24	336 (2.6%)	277 (2.4%)	59 (3.6%)
25–39	1886 (14.6%)	1504 (13.3%)	382 (23.3%)
40–64	6125 (47.3%)	5213 (46.1%)	912 (55.6%)
65–74	2700 (20.8%)	2510 (22.2%)	190 (11.6%)
75 and over	1908 (14.7%)	1811 (16.0%)	97 (5.9%)
Gender: n (%)			
Male	4956 (38.3%)	4486 (39.6%)	470 (28.7%)
Female	7999 (61.7%)	6829 (60.4%)	1170 (71.3%)
Patient in paid work >20h/week: n (%)			
No	6616 (51.7%)	5820 (52.0%)	796 (49.5%)
Yes	6179 (48.3%)	5367 (48.0%)	812 (50.5%)
Smoking status: n (%)			
Current smoker	2506 (19.3%)	2316 (20.5%)	190 (11.6%)
Ex-smoker	3773 (29.1%)	3577 (31.6%)	196 (12.0%)
Never smoked	5798 (44.8%)	4681 (41.4%)	1117 (68.1%)
Not known	878 (6.8%)	741 (6.5%)	137 (8.4%)
Source of referral: n (%)			
Ophthalmology	2 (0.8%)	2 (1.0%)	0 (0.0%)
Gastroenterology	7 (2.9%)	7 (3.3%)	0 (0.0%)
Primary care	179 (73.7%)	156 (74.3%)	23 (69.7%)
Musculoskeletal triage service	28 (11.5%)	21 (10.0%)	7 (21.2%)
Other	27 (11.1%)	24 (11.4%)	3 (9.1%)
Referral via EIA pathway: n (%)	8334 (65.0%)	7207 (64.4%)	1127 (69.3%)
What is your working diagnosis: n (%)			
Rheumatoid Arthritis	9051 (70%)	7874 (70%)	1177 (72%)
Psoriatic Arthritis	1639 (13%)	1497 (13%)	142 (9%)
Axial Spondyloarthritis	243 (2%)	210 (2%)	33 (2%)
Undifferentiated Arthritis	1544 (12%)	1325 (12%)	219 (13%)
Other	478 (4%)	409 (4%)	69 (4%)
RhF or CCP positive: n (%)			
No	5027 (43.0%)	4480 (43.8%)	547 (37.1%)
Yes	6671 (57.0%)	5744 (56.2%)	927 (62.9%)
Comorbidity: n (%)			
None	7450 (58.2%)	6376 (57.0%)	1074 (66.9%)
One	2757 (21.6%)	2484 (22.2%)	273 (17.0%)
Two or more	2585 (20.2%)	2327 (20.8%)	258 (16.1%)

Data table 1

Baseline socio-demographic and clinical characteristics

All patients	Total	White	Black, Asian and ethnic minority
Baseline DAS28: median (IQR)	4.7 (3.6, 5.7)	4.7 (3.6, 5.7)	4.8 (3.6, 5.7)
Baseline ESR mm/hr: median (IQR)	24.0 (10.0, 41.0)	24.0 (10.0, 41.0)	27.0 (13.0, 46.0)
Baseline CRP mg/l: median (IQR)	10.0 (4.0, 27.0)	11.0 (4.0, 28.0)	8.0 (3.0, 20.0)
Progressed to biologic DMARD: n (%)	725 (15.4%)	664 (15.8%)	61 (11.7%)
Missing information: n	8360	7122	1120
MSKHQ score: median (IQR)	25.0 (17.0, 33.0)	25.0 (17.0, 33.0)	22.0 (16.0, 32.0)
Health Assessment Questionnaire: median (IQR)	1.0 (0.6, 1.6)	1.0 (0.5, 1.6)	1.1 (0.6, 1.6)
PHQ and GAD combined total: median (IQR)	4.0 (1.0, 8.0)	4.0 (1.0, 8.0)	5.0 (1.5, 8.0)
Probably MH diagnosis at baseline: n (%)	3174 (48.1%)	2822 (47.4%)	352 (55.2%)
Absenteeism: median (IQR)	0.0 (0.0, 12.5)	0.0 (0.0, 12.3)	0.0 (0.0, 14.3)
Absenteeism: mean (SD)	16.6 (32.7)	16.5 (32.7)	17.3 (33.0)
Missed >1 day/month: n (%)			
No	1771 (71.8%)	1615 (72.0%)	156 (70.0%)
Yes	696 (28.2%)	629 (28.0%)	67 (30.0%)
Presenteeism: median (IQR)	40.0 (20.0, 70.0)	40.0 (20.0, 70.0)	50.0 (20.0, 70.0)
Overall impairment: median (IQR)	30.0 (4.7, 50.0)	30.0 (4.7, 50.0)	31.3 (8.0, 55.6)

Data table 1a

Baseline socio-demographic and clinical characteristics with ethnicity breakdown

All patients	Total N=35,807	White N=30,643	Black N=1035	Asian N=2617	Mixed N=238	Other N=1274
Age: median (IQR)	55 (42, 67)	56 (44, 68)	51 (40, 59)	46 (37, 57)	46 (34, 55)	49 (38, 60)
Age-band: n (%)						
16–24	1226 (3.4%)	1004 (3.3%)	43 (4.2%)	105 (4.0%)	15 (6.3%)	59 (4.6%)
25–39	6188 (17.3%)	4888 (16.0%)	210 (20.3%)	733 (28.0%)	72 (30.3%)	285 (22.4%)
40–64	18,024 (50.3%)	15,132 (49.4%)	617 (59.6%)	1447 (55.3%)	124 (52.1%)	704 (55.3%)
65–74	6081 (17.0%)	5564 (18.2%)	98 (9.5%)	242 (9.2%)	20 (8.4%)	157 (12.3%)
75 and over	4286 (12.0%)	4053 (13.2%)	67 (6.5%)	90 (3.4%)	7 (2.9%)	69 (5.4%)
Gender: n (%)						
Male	12,307 (34.4%)	10,926 (35.7%)	239 (23.1%)	710 (27.1%)	62 (26.1%)	370 (29.0%)
Female	23,500 (65.6%)	19,717 (64.3%)	796 (76.9%)	1907 (72.9%)	176 (73.9%)	904 (71.0%)
Patient in paid work: n (%) >20h/week						
No	17,336 (50.6%)	14,903 (50.7%)	455 (45.7%)	1350 (53.3%)	90 (40.2%)	538 (46.5%)
Yes	16,941 (49.4%)	14,466 (49.3%)	541 (54.3%)	1182 (46.7%)	134 (59.8%)	618 (53.5%)
Smoking status: n (%)						
Current smoker	6053 (16.9%)	5502 (18.0%)	129 (12.5%)	215 (8.2%)	37 (15.5%)	170 (13.3%)
Ex-smoker	8920 (24.9%)	8376 (27.3%)	126 (12.2%)	170 (6.5%)	40 (16.8%)	208 (16.3%)
Never smoked	16,873 (47.1%)	13,524 (44.1%)	632 (61.1%)	2012 (76.9%)	121 (50.8%)	584 (45.8%)
Not known	3961 (11.1%)	3241 (10.6%)	148 (14.3%)	220 (8.4%)	40 (16.8%)	312 (24.5%)
Duration Symptoms: n (%)						
<1 month	2687 (7.8%)	2337 (7.9%)	67 (6.7%)	205 (8.0%)	19 (8.4%)	59 (5.0%)
1–3 months	9009 (26.0%)	7783 (26.3%)	235 (23.4%)	636 (24.9%)	61 (27.1%)	294 (24.8%)
3–6 months	6774 (19.6%)	5798 (19.6%)	191 (19.0%)	522 (20.4%)	48 (21.3%)	215 (18.1%)
6–12 months	6454 (18.6%)	5568 (18.8%)	183 (18.2%)	437 (17.1%)	30 (13.3%)	236 (19.9%)
1–5 years	6801 (19.6%)	5699 (19.2%)	236 (23.5%)	552 (21.6%)	43 (19.1%)	271 (22.8%)
5–10 years	1705 (4.9%)	1439 (4.9%)	62 (6.2%)	125 (4.9%)	14 (6.2%)	65 (5.5%)
>10 years	1186 (3.4%)	1022 (3.4%)	30 (3.0%)	78 (3.1%)	10 (4.4%)	46 (3.9%)
Referral via EIA pathway: n (%)	23,431 (67.1%)	19,818 (66.4%)	775 (76.3%)	1760 (68.4%)	151 (65.4%)	927 (74.4%)
What is your working diagnosis: n (%)						
Rheumatoid Arthritis	9570 (28%)	8293 (28%)	278 (28%)	680 (27%)	44 (20%)	275 (24%)
Psoriatic Arthritis	2747 (8%)	2469 (8%)	21 (2%)	181 (7%)	15 (7%)	61 (5%)
Axial Spondyloarthritis	826 (2%)	716 (2%)	12 (1%)	58 (2%)	3 (1%)	37 (3%)
Crystal Arthritis	1218 (4%)	1105 (4%)	28 (3%)	42 (2%)	9 (4%)	34 (3%)
Connective Tissue Disease	479 (1%)	353 (1%)	37 (4%)	56 (2%)	6 (3%)	27 (2%)
Osteoarthritis	6346 (19%)	5558 (19%)	173 (18%)	383 (15%)	34 (15%)	198 (17%)
Fibromyalgia	1322 (4%)	1112 (4%)	49 (5%)	108 (4%)	15 (7%)	38 (3%)
Reactive Arthritis	890 (3%)	777 (3%)	24 (2%)	58 (2%)	6 (3%)	25 (2%)
Undifferentiated Arthritis	3443 (10%)	2995 (10%)	74 (8%)	253 (10%)	19 (9%)	102 (9%)
Other	6846 (20%)	5517 (19%)	278 (28%)	646 (26%)	68 (30%)	337 (29%)
Mechanical Back Pain	391 (1%)	319 (1%)	11 (1%)	38 (2%)	4 (2%)	19 (2%)
Patient eligible for follow up: n (%)						
No	10,381 (44%)	8588 (43%)	347 (52%)	887 (49%)	79 (53%)	480 (59%)
Yes	12,955 (56%)	11,315 (57%)	314 (48%)	927 (51%)	70 (47%)	329 (41%)

Data table 1a

Baseline socio-demographic and clinical characteristics with ethnicity breakdown

All patients EIA-eligible for follow up	Total N=12,955	White N=11,315	Black N=314	Asian N=927	Mixed N=70	Other N=329
Age: median (IQR)	58 (46, 70)	59 (47, 71)	53 (42, 62)	47 (38, 58)	47 (35, 56)	53 (41, 64)
Age-band: n (%)						
16–24	336 (2.6%)	277 (2.4%)	11 (3.5%)	30 (3.2%)	6 (8.6%)	12 (3.6%)
25–39	1886 (14.6%)	1504 (13.3%)	56 (17.8%)	243 (26.2%)	19 (27.1%)	64 (19.5%)
40–64	6125 (47.3%)	5213 (46.1%)	178 (56.7%)	521 (56.2%)	38 (54.3%)	175 (53.2%)
65–74	2700 (20.8%)	2510 (22.2%)	36 (11.5%)	97 (10.5%)	4 (5.7%)	53 (16.1%)
75 and over	1908 (14.7%)	1811 (16.0%)	33 (10.5%)	36 (3.9%)	3 (4.3%)	25 (7.6%)
Gender: n (%)						
Male	4956 (38.3%)	4486 (39.6%)	78 (24.8%)	273 (29.4%)	19 (27.1%)	100 (30.4%)
Female	7999 (61.7%)	6829 (60.4%)	236 (75.2%)	654 (70.6%)	51 (72.9%)	229 (69.6%)
Patient in paid work: n (%) >20h/week						
No	6616 (51.7%)	5820 (52.0%)	152 (48.9%)	471 (51.4%)	25 (36.2%)	148 (47.6%)
Yes	6179 (48.3%)	5367 (48.0%)	159 (51.1%)	446 (48.6%)	44 (63.8%)	163 (52.4%)
Smoking status: n (%)						
Current smoker	2506 (19.3%)	2316 (20.5%)	43 (13.7%)	83 (9.0%)	13 (18.6%)	51 (15.5%)
Ex-smoker	3773 (29.1%)	3577 (31.6%)	41 (13.1%)	73 (7.9%)	11 (15.7%)	71 (21.6%)
Never smoked	5798 (44.8%)	4681 (41.4%)	201 (64.0%)	720 (77.7%)	39 (55.7%)	157 (47.7%)
Not known	878 (6.8%)	741 (6.5%)	29 (9.2%)	51 (5.5%)	7 (10.0%)	50 (15.2%)
Source of referral: n (%)						
Ophthalmology	2 (0.8%)	2 (1.0%)	0 (0.0%)	0 (0.0%)	–	0 (0.0%)
Gastroenterology	7 (2.9%)	7 (3.3%)	0 (0.0%)	0 (0.0%)	–	0 (0.0%)
Primary care	179 (73.7%)	156 (74.3%)	2 (40.0%)	15 (83.3%)	–	6 (60.0%)
Musculoskeletal triage service	28 (11.5%)	21 (10.0%)	2 (40.0%)	2 (11.1%)	–	3 (30.0%)
Other	27 (11.1%)	24 (11.4%)	1 (20.0%)	1 (5.6%)	–	1 (10.0%)
Referral via EIA pathway: n (%)	8334 (65.0%)	7207 (64.4%)	231 (74.8%)	614 (66.5%)	49 (72.1%)	233 (71.7%)
What is your working diagnosis: n (%)						
Rheumatoid Arthritis	9051 (70%)	7874 (70%)	252 (80%)	641 (69%)	42 (60%)	242 (74%)
Psoriatic Arthritis	1639 (13%)	1497 (13%)	14 (4%)	97 (10%)	10 (14%)	21 (6%)
Axial Spondyloarthritis	243 (2%)	210 (2%)	5 (2%)	18 (2%)	0 (0%)	10 (3%)
Undifferentiated Arthritis	1544 (12%)	1325 (12%)	39 (12%)	129 (14%)	15 (21%)	36 (11%)
Other	478 (4%)	409 (4%)	4 (1%)	42 (5%)	3 (4%)	20 (6%)
RhF or CCP positive: n (%)						
No	5027 (43.0%)	4480 (43.8%)	94 (33.8%)	315 (37.1%)	26 (40.6%)	112 (39.6%)
Yes	6671 (57.0%)	5744 (56.2%)	184 (66.2%)	534 (62.9%)	38 (59.4%)	171 (60.4%)
Comorbidity: n (%)						
None	7450 (58.2%)	6376 (57.0%)	184 (60.3%)	640 (69.8%)	42 (61.8%)	208 (66.0%)
One	2757 (21.6%)	2484 (22.2%)	50 (16.4%)	146 (15.9%)	16 (23.5%)	61 (19.4%)
Two or more	2585 (20.2%)	2327 (20.8%)	71 (23.3%)	131 (14.3%)	10 (14.7%)	46 (14.6%)

Data table 1a

Baseline socio-demographic and clinical characteristics with ethnicity breakdown

All patients	Total	White	Black	Asian	Mixed	Other
Progressed to biologic DMARD: n (%)	725 (15.4%)	664 (15.8%)	18 (17.1%)	26 (9.0%)	3 (12.5%)	14 (13.6%)
Missing information: n	8360	7122	209	639	46	226
Baseline DAS28: median (IQR)	4.7 (3.6, 5.7)	4.7 (3.6, 5.7)	5.2 (4.2, 6.3)	4.7 (3.5, 5.6)	4.6 (3.7, 5.2)	4.7 (3.3, 5.5)
Baseline ESR mm/hr: median (IQR)	24.0 (10.0, 41.0)	24.0 (10.0, 41.0)	36.0 (18.0, 60.0)	26.0 (13.0, 43.0)	20.0 (10.0, 28.0)	26.0 (9.0, 42.0)
Baseline CRP mg/l: median (IQR)	10.0 (4.0, 27.0)	11.0 (4.0, 28.0)	10.0 (4.0, 27.0)	7.0 (3.0, 18.0)	6.0 (2.0, 19.0)	7.0 (4.0, 20.0)
MSKHQ score: median (IQR)	25.0 (17.0, 33.0)	25.0 (17.0, 33.0)	21.0 (14.0, 27.0)	23.0 (16.0, 33.0)	25.5 (17.0, 33.0)	26.0 (16.0, 34.0)
Health Assessment Questionnaire: median (IQR)	1.0 (0.6, 1.6)	1.0 (0.5, 1.6)	1.4 (0.8, 1.9)	1.1 (0.7, 1.6)	1.1 (0.3, 1.4)	1.0 (0.4, 1.6)
PHQ and GAD combined total: median (IQR)	4.0 (1.0, 8.0)	4.0 (1.0, 8.0)	6.0 (2.0, 9.0)	5.0 (2.0, 8.0)	3.5 (1.0, 6.5)	4.0 (1.0, 8.0)
Absenteeism: median (IQR)	0.0 (0.0, 12.5)	0.0 (0.0, 12.3)	0.0 (0.0, 40.3)	0.0 (0.0, 7.7)	0.0 (0.0, 0.0)	0.0 (0.0, 25.0)
Absenteeism: mean (SD)	16.6 (32.7)	16.5 (32.7)	22.6 (34.7)	16.1 (32.7)	11.4 (28.8)	17.9 (33.7)
Missed >1 day/month: n (%)						
No	1771 (71.8%)	1615 (72.0%)	23 (57.5%)	90 (73.2%)	11 (78.6%)	32 (69.6%)
Yes	696 (28.2%)	629 (28.0%)	17 (42.5%)	33 (26.8%)	3 (21.4%)	14 (30.4%)
Presenteeism: median (IQR)	40.0 (20.0, 70.0)	40.0 (20.0, 70.0)	60.0 (15.0, 85.0)	50.0 (20.0, 70.0)	40.0 (20.0, 80.0)	50.0 (30.0, 70.0)
Overall impairment: median (IQR)	30.0 (4.7, 50.0)	30.0 (4.7, 50.0)	30.0 (1.0, 65.0)	30.0 (1.0, 55.6)	32.8 (1.0, 63.1)	40.0 (20.0, 50.0)

Data table 2

Achievement of clinical process measures

All patients	Total	White	Black, Asian and ethnic minority
	N=35,807	N=30,643	N=5164
Referral within 3 days of EIA – QS1: n (%)	14,894 (43.3%)	12,561 (42.7%)	2333 (47.0%)
Seen within 3 weeks – QS2 (2013 version): n (%)	14,803 (42.1%)	12,619 (41.9%)	2184 (43.1%)
EIA-eligible for follow-up			
Treatment within 6 weeks – QS2: n (%)			
No	4257 (43.0%)	3776 (43.4%)	481 (40.0%)
Yes	5642 (57.0%)	4919 (56.6%)	723 (60.0%)
Treatment target set – QS2: n (%)			
No	1754 (13.9%)	1518 (13.8%)	236 (15.1%)
Yes	10,824 (86.1%)	9494 (86.2%)	1330 (84.9%)
Education provided – QS3: n (%)			
No	724 (5.7%)	614 (5.6%)	110 (7.0%)
Yes	11,912 (94.3%)	10,447 (94.4%)	1465 (93.0%)
Emergency access to care – QS4: n (%)			
No	912 (7.2%)	769 (7.0%)	143 (9.1%)
Yes	11,676 (92.8%)	10,251 (93.0%)	1425 (90.9%)
Annual review – QS5: n (%)			
No	2602 (55.4%)	2261 (54.2%)	341 (65.6%)
Yes	2093 (44.6%)	1914 (45.8%)	179 (34.4%)

Data table 2a

Achievement of clinical process measures with ethnicity breakdown

All patients	Total N=35,807	White N=30,643	Black N=1035	Asian N=2617	Mixed N=238	Other N=1274
Referral within 3 days of EIA – QS1: n (%)	14,894 (43.3%)	12,561 (42.7%)	445 (44.3%)	1160 (45.6%)	88 (38.9%)	640 (53.7%)
Seen within 3 weeks – QS2 (2013 version): n (%)	14,803 (42.1%)	12,619 (41.9%)	422 (41.3%)	1187 (46.1%)	98 (42.4%)	477 (38.3%)
EIA-eligible for follow up						
Treatment within 6 weeks – QS2: n (%)						
No	4257 (43.0%)	3776 (43.4%)	98 (41.2%)	256 (37.8%)	23 (46.9%)	104 (43.5%)
Yes	5642 (57.0%)	4919 (56.6%)	140 (58.8%)	422 (62.2%)	26 (53.1%)	135 (56.5%)
Treatment target set – QS2: n (%)						
No	1754 (13.9%)	1518 (13.8%)	41 (13.7%)	118 (13.2%)	16 (23.5%)	61 (20.2%)
Yes	10,824 (86.1%)	9494 (86.2%)	258 (86.3%)	779 (86.8%)	52 (76.5%)	241 (79.8%)
Education provided – QS3: n (%)						
No	724 (5.7%)	614 (5.6%)	18 (6.0%)	64 (7.1%)	9 (13.2%)	19 (6.2%)
Yes	11,912 (94.3%)	10,447 (94.4%)	283 (94.0%)	838 (92.9%)	59 (86.8%)	285 (93.8%)
Emergency access to care – QS4: n (%)						
No	912 (7.2%)	769 (7.0%)	23 (7.7%)	72 (8.0%)	11 (16.2%)	37 (12.3%)
Yes	11,676 (92.8%)	10,251 (93.0%)	277 (92.3%)	826 (92.0%)	57 (83.8%)	265 (87.7%)
Annual review – QS5: n (%)						
No	2602 (55.4%)	2261 (54.2%)	71 (68.3%)	191 (66.3%)	17 (68.0%)	62 (60.2%)
Yes	2093 (44.6%)	1914 (45.8%)	33 (31.7%)	97 (33.7%)	8 (32.0%)	41 (39.8%)

Data table 3

Outcomes measures at three months

	Total	White	Black, Asian and ethnic minority
EIA-eligible RA	N=35,807	N=30,643	N=5164
EULAR response 3-month: n (%)			
No response	2600 (33.4%)	2269 (32.9%)	331 (37.1%)
Moderate response	2280 (29.3%)	2012 (29.2%)	268 (30.0%)
Good response	2912 (37.4%)	2619 (38.0%)	293 (32.8%)
DAS28 at 3 months: median (IQR)	3.2 (2.2, 4.3)	3.1 (2.1, 4.2)	3.4 (2.4, 4.5)
ESR at 3 months mm/hr: median (IQR)	14.0 (6.0, 28.0)	14.0 (6.0, 27.0)	18.0 (9.0, 34.0)
CRP at 3 months mg/l: median (IQR)	5.0 (2.0, 11.0)	5.0 (2.0, 11.0)	4.0 (2.0, 9.0)
Remission by 3 months: n (%)			
No	5116 (63.4%)	4475 (62.6%)	641 (69.6%)
Yes	2955 (36.6%)	2675 (37.4%)	280 (30.4%)
HAQ 3-month: median (IQR)	0.7 (0.3, 1.2)	0.7 (0.3, 1.2)	0.7 (0.2, 1.3)
MCID: n (%)			
Less improvement	1130 (52.5%)	1063 (52.5%)	67 (51.5%)
More improvement	1024 (47.5%)	961 (47.5%)	63 (48.5%)
MSKHQ 3-month score: median (IQR)	36.0 (25.0, 45.0)	36.0 (25.0, 45.0)	34.5 (24.0, 44.0)
PHQ and GAD combined total at 3 months: median (IQR)	2.0 (0.0, 5.0)	2.0 (0.0, 5.0)	2.0 (0.0, 5.0)
Probable MH diagnosis at 3 months: n (%)	838 (29.9%)	772 (29.6%)	66 (33.3%)
Absenteeism at 3 months: median (IQR)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)
Absenteeism at 3 months: mean (SD)	8.6 (23.8)	8.9 (24.1)	6.2 (20.0)
Missed >1 day/month: n (%)			
No	1060 (82.2%)	965 (81.8%)	95 (86.4%)
Yes	229 (17.8%)	214 (18.2%)	15 (13.6%)
Presenteeism at 3 months: median (IQR)	30.0 (10.0, 50.0)	30.0 (10.0, 50.0)	30.0 (0.0, 60.0)
Overall work impairment at 3 months: median (IQR)	20.0 (1.0, 40.0)	20.0 (1.0, 40.0)	20.0 (1.0, 50.0)

Data table 3a

Outcomes measures at three months with ethnicity breakdown

EIA-eligible RA	Total N=35,807	White N=30,643	Black N=1035	Asian N=2617	Mixed N=238	Other N=1274
EULAR response 3-month: n (%)						
No response	2600 (33.4%)	2269 (32.9%)	63 (37.3%)	185 (37.3%)	13 (40.6%)	70 (35.9%)
Moderate response	2280 (29.3%)	2012 (29.2%)	59 (34.9%)	145 (29.2%)	8 (25.0%)	56 (28.7%)
Good response	2912 (37.4%)	2619 (38.0%)	47 (27.8%)	166 (33.5%)	11 (34.4%)	69 (35.4%)
DAS28 at 3 months: median (IQR)						
	3.2 (2.2, 4.3)	3.1 (2.1, 4.2)	3.8 (2.7, 5.0)	3.5 (2.4, 4.4)	3.4 (2.5, 4.6)	3.2 (2.0, 4.3)
ESR at 3 months mm/hr: median (IQR)						
	14.0 (6.0, 28.0)	14.0 (6.0, 27.0)	21.0 (11.0, 42.0)	19.5 (10.0, 33.0)	14.0 (5.0, 35.0)	14.0 (5.5, 27.5)
CRP at 3 months mg/l: median (IQR)						
	5.0 (2.0, 11.0)	5.0 (2.0, 11.0)	5.0 (2.0, 11.0)	5.0 (2.0, 9.0)	3.0 (1.0, 9.0)	4.0 (2.0, 7.5)
Remission by 3 months: n (%)						
No	5116 (63.4%)	4475 (62.6%)	134 (77.0%)	356 (69.8%)	25 (73.5%)	126 (62.1%)
Yes	2955 (36.6%)	2675 (37.4%)	40 (23.0%)	154 (30.2%)	9 (26.5%)	77 (37.9%)
HAQ 3-month: median (IQR)						
	0.7 (0.3, 1.2)	0.7 (0.3, 1.2)	0.9 (0.4, 1.5)	0.6 (0.3, 1.3)	0.6 (0.2, 1.1)	0.7 (0.1, 1.0)
MCID: n (%)						
Less improvement	1130 (52.5%)	1063 (52.5%)	14 (51.9%)	30 (48.4%)	5 (62.5%)	18 (54.5%)
More improvement	1024 (47.5%)	961 (47.5%)	13 (48.1%)	32 (51.6%)	3 (37.5%)	15 (45.5%)
MSKHQ 3-month: median (IQR)						
	36.0 (25.0, 45.0)	36.0 (25.0, 45.0)	31.5 (24.0, 44.5)	34.0 (22.0, 43.0)	37.5 (30.0, 44.0)	36.0 (26.0, 48.0)
PHQ and GAD combined total at 3 months: median (IQR)						
	2.0 (0.0, 5.0)	2.0 (0.0, 5.0)	2.5 (0.0, 5.0)	3.0 (0.0, 7.0)	1.0 (0.0, 3.5)	2.0 (0.0, 4.0)
Absenteeism at 3 months: median (IQR)						
	0.0 (0.0, 0.0)	0.0 (0.0, 0.0)	0.0 (0.0, 18.6)	0.0 (0.0, 0.0)	0.0 (0.0, 50.0)	0.0 (0.0, 0.0)
Absenteeism at 3 months: mean (SD)						
	8.6 (23.8)	8.9 (24.1)	16.1 (29.4)	2.1 (7.1)	25.0 (46.3)	0.0 (0.0)
Missed >1 day/month: n (%)						
No	1060 (82.2%)	965 (81.8%)	14 (60.9%)	49 (92.5%)	6 (75.0%)	26 (100.0%)
Yes	229 (17.8%)	214 (18.2%)	9 (39.1%)	4 (7.5%)	2 (25.0%)	0 (0.0%)
Presenteeism at 3 months: median (IQR)						
	30.0 (10.0, 50.0)	30.0 (10.0, 50.0)	70.0 (10.0, 80.0)	35.0 (0.0, 50.0)	35.0 (10.0, 50.0)	20.0 (0.0, 40.0)
Overall impairment at 3 months: median (IQR)						
	20.0 (1.0, 40.0)	20.0 (1.0, 40.0)	49.0 (1.0, 66.8)	30.0 (0.0, 50.0)	15.0 (1.0, 35.0)	20.0 (0.0, 30.0)

Data table 4

Three-month remission and QS performance in Black, Asian and ethnic minority group

Model	Number of patients (n)	Odds ratio	95%	CIP-value
Black, Asian and ethnic minority and 3-month remission				
Unadjusted	8071	0.7	(0.563, 0.949)	0.019
Age/gender-adjusted	8071	0.7	(0.643, 0.869)	0.000
Demographics-adjusted*	7320	0.8	(0.653, 0.910)	0.002
Demographics-adjusted* plus deprivation (England patients only)	6831	0.8	(0.702, 0.984)	0.033
QS-adjusted**	7363	0.8	(0.648, 0.892)	0.001
Fully adjusted	6792	0.8	(0.648, 0.917)	0.003
Black, Asian and ethnic minority and QS performance				
Unadjusted				
QS1	34,387	1.2	(1.119, 1.263)	<0.01
QS2 (2013 version)	35,160	1.0	(0.986, 1.112)	0.132
QS2	9900	1.2	(1.020, 1.305)	0.022
QS2 (treatment target)	12,588	0.7	(0.620, 0.901)	0.002
QS3	12,578	1.0	(0.777, 1.046)	0.170
QS4	12,636	0.8	(0.634, 0.966)	0.022

*Demographic-adjusted model was adjusted for age, gender, smoking, comorbidity, seropositivity and DAS28 at baseline.

**QS-adjusted model was adjusted for Quality statements.

Data table 5

The relationship between ethnicity and QS performance

Model	Number of patients (n)	Odds ratio	95% CI	P-value
Ethnicity and QS performance				
Unadjusted				
QS1	34,387			
Black		1.067	(0.940, 1.210)	0.319
Asian		1.124	(1.036, 1.219)	0.005
Mixed		0.856	(0.654, 1.119)	0.256
Other		1.559	(1.388, 1.751)	0.000
QS2 (2013 version)	35,160			
Black		0.975	(0.859, 1.107)	0.699
Asian		1.184	(1.092, 1.284)	0.000
Mixed		1.02	(0.785, 1.326)	0.882
Other		0.861	(0.766, 0.967)	0.012
QS2	9900			
Black		1.097	(0.844, 1.425)	0.49
Asian		1.265	(1.077, 1.486)	0.004
Mixed		0.868	(0.494, 1.523)	0.622
Other		0.996	(0.769, 1.291)	0.980
QS2 (treatment target)	12, 578			
Black		1.006	(0.720, 1.405)	0.971
Asian		1.056	(0.863, 1.291)	0.598
Mixed		0.520	(0.296, 0.912)	0.023
Other		0.632	(0.475, 0.841)	0.002
QS3	12,636			
Black		0.924	(0.570, 1.498)	0.749
Asian		0.770	(0.589, 1.005)	0.054
Mixed		0.385	(0.190, 0.781)	0.008
Other		0.882	(0.550, 1.413)	0.6
QS4	12,588			
Black		0.903	(0.587, 1.391)	0.645
Asian		0.861	(0.669, 1.107)	0.243
Mixed		0.389	(0.203, 0.744)	0.004
Other		0.537	(0.378, 0.764)	0.000



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