

Development and testing of a bespoke cultural intervention to support healthcare professionals with patients from a diverse background

Deshmukh, Ashwini; Roberts, Lisa; Adebajo, Adewale ; Kamal, Atiya ; Armitage, Christopher J; Evison, Felicity; Bunting, Helen; Dubey, Shirish ; Moorthy, Arumugam; Reehal, Joti; Dogra, Nisha ; Kumar, Kanta

DOI:

[10.1093/rheumatology/kead383](https://doi.org/10.1093/rheumatology/kead383)

License:

Creative Commons: Attribution-NonCommercial (CC BY-NC)

Document Version

Peer reviewed version

Citation for published version (Harvard):

Deshmukh, A, Roberts, L, Adebajo, A, Kamal, A, Armitage, CJ, Evison, F, Bunting, H, Dubey, S, Moorthy, A, Reehal, J, Dogra, N & Kumar, K 2023, 'Development and testing of a bespoke cultural intervention to support healthcare professionals with patients from a diverse background', *Rheumatology*.
<https://doi.org/10.1093/rheumatology/kead383>

[Link to publication on Research at Birmingham portal](#)

General rights

Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

- Users may freely distribute the URL that is used to identify this publication.
- Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
- User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
- Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

Take down policy

While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact UBIRA@lists.bham.ac.uk providing details and we will remove access to the work immediately and investigate.

Development and testing of a bespoke cultural intervention to support healthcare professionals with patients from a diverse background

Ashwini Deshmukh¹, Lisa Roberts², Adewale Adebajo³, Atiya Kamal⁴, Christopher J. Armitage^{5,6}, Felicity Evison⁷, Helen Bunting⁸, Shirish Dubey⁸, Arumugam Moorthy^{9,10}, Joti Reehal¹¹, Nisha Dogra¹², Kanta Kumar^{1,13}

¹Institute of Clinical Sciences, College of Medical and Dental Sciences, University of Birmingham, UK

²School of Health Sciences, University of Southampton, Southampton, UK. Therapy Services, University Hospital Southampton NHS Foundation Trust, Southampton, SO16 6YD

³Faculty of Medicine, Dentistry and Health, University of Sheffield, Sheffield, UK

⁴School of Social Sciences, Birmingham City University, Birmingham, UK

⁵Manchester Centre for Health Psychology, School of Health Sciences, University of Manchester,

⁶Manchester University NHS Foundation Trust, Manchester, UK

⁷The University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK

⁸Oxford University Hospitals NHS Foundation Trust, Oxford, UK

⁹University Hospitals of Leicester NHS Trust, Leicester, UK

¹⁰College of Life Sciences, University of Leicester, UK

¹¹National Rheumatoid Arthritis Society, Maidenhead, UK

¹²Medical School, University of Leicester, Leicester, UK

^{1,13}Institute of Clinical Sciences, College of Medical and Dental Sciences, University of Birmingham, UK, Royal Wolverhampton NHS Trust, Wolverhampton, UK

Corresponding author; Dr Kanta Kumar k.kumar@bham.ac.uk, Institute of Clinical Sciences, College of Medical and Dental Sciences, University of Birmingham, UK

Abstract

Objective: Development and test of a culturally sensitive intervention for rheumatology healthcare professionals (HCPs).

Methods: Using a before and after study design, fifteen HCPs were recruited to undertake the bespoke intervention from four NHS sites across England, in areas serving a diverse population. The intervention was evaluated using the validated outcomes: [1] Patient Reported Physician Cultural Competency (PRPCC); and [2] Patient Enablement Instrument (PEI), measuring patients' perceptions of their overall healthcare delivery. Additionally, HCPs completed the Capability COM-B questionnaire (C), Opportunity (O) and Motivation (M) to perform Behaviour (B), measuring behaviour change.

Results: 200 patients were recruited before HCPs undertook the intervention (cohort 1), and 200 were recruited after (cohort 2) from fifteen HCPs, after exclusions 178 patients remained in cohort 1 and 186 in cohort 2. Patients identifying as White in both recruited cohorts were 60% compared to 29% and 33% of patients (cohorts 1 and 2 respectively) who identified as of South Asian origin. After the intervention, the COM-B scores indicated HCPs felt more skilled and equipped for consultations. No significant differences were noted in the average overall cultural competency score between the two cohorts in White patients (57.3 vs 56.8, $p=0.8$), however, in the South Asian cohort, there was a statistically significant improvement in mean scores (64.1 vs 56.7, $p=0.014$). Overall, the enablement score also showed a statistically significant improvement following intervention (7.3 vs 4.3, $p<0.001$) in the White patients; and in the South Asian patients (8.0 vs 2.2, $p<0.001$).

Conclusion:

This novel study provides evidence for improving cultural competency and patient enablement in rheumatology settings.

Rheumatology key messages

Meaningful patient-HCPs communication reduces health disparities, improving clinical outcomes and addressing inequalities.

Tailored online intervention programme enhances cultural competency and patient enablement among rheumatology HCPs.

Cultural competency interventions improve patient experience in rheumatology clinics, especially for South Asian individuals.

Key words: ethnicity, education, cultural competency, clinical outcomes

Introduction

Cultural competence in healthcare is primarily exemplified by the behaviours exhibited by healthcare professionals (HCPs) in addressing the needs of individuals from diverse cultural and ethnic backgrounds [1]. It is an expectation of people to anticipate that their HCPs will demonstrate cultural competence by engaging in communication and interactions that manifest an understanding of customs, languages, beliefs, and values [2]. HCPs can take the initial steps towards developing cultural sensitivity by acknowledging the multiplicity of cultures and worldviews that exist within a remarkably diverse nation [2]. Furthermore, HCPs should acknowledge that one's perception of the world is profoundly influenced by their personal background and experiences [3]. Recognising that, like others, they too may hold biases and preconceptions is crucial for HCPs [3]. Sustaining a heightened level of self-awareness serves as a constant reminder to HCPs regarding how their worldview influences their healthcare practices. In numerous Western nations, including the United Kingdom, considerable health disparities stem from the absence of adequately tailored models of care that incorporate cultural sensitivity [4]. As minority populations continue to grow within Western nations, the imperative to train HCPs in delivering culturally sensitive care has been emphasised for at least the past two decades [1].

Numerous specialties have independently devised cultural competence interventions within their respective practices [1, 3, 4], albeit often lacking in freely accessible resources. Notably, disciplines such as general medicine, mental health, diabetes, and cardiovascular specialties have been at the forefront of pioneering efforts in developing cultural competency interventions [1, 3, 4]. Studies focusing on diabetes care for patients of African American, Asian/Pacific Islander, and Latino backgrounds have provided evidence demonstrating that cultural competence interventions enhance HCPs' knowledge regarding cultural aspects [5]. Furthermore, these interventions have been shown to significantly enhance patient satisfaction and overall experience [5]. A comprehensive review of studies [6] indicated that cultural competency programmes effectively augment practitioners' knowledge, awareness, and cultural sensitivity [6]. Additionally, a study conducted in the United Kingdom revealed tangible improvements in the skills and confidence of HCPs when providing support to individuals of South Asian origin with type 1 diabetes [4].

1
2
3 Within the realm of rheumatology practice, our research has also documented poor disease
4 outcomes in patients of South Asian origin [7]. Our extensive mixed methods investigations
5 have yielded valuable insights into the multifaceted factors contributing to these suboptimal
6 disease outcomes [7-9]. Given the intricate and multi-level nature of disparities in
7 rheumatology, it is imperative that strategies aimed at addressing these disparities adopt a
8 comprehensive approach, targeting various facets of rheumatology care. It is unrealistic to
9 rely solely on patient-centred interventions within the healthcare sector to substantially
10 narrow this disparity gap [7]. HCPs in rheumatology have expressed a deficiency in skills
11 required to effectively engage with patients of South Asian origin [10]. Our preliminary studies
12 have revealed a lack of confidence among rheumatology HCPs in providing support to patients
13 from South Asian backgrounds, resulting in perceived deficiencies in their ability to engage
14 with this patient population, ultimately impacting patients' satisfaction with clinical services
15 [8, 10]. HCPs have identified a crucial need for interventions that address both consultation
16 skills and the establishment of culturally sensitive services to address these challenges.
17
18
19
20
21
22
23
24
25
26
27
28
29

30 This project involved a comprehensive examination of the existing body of evidence [1-3, 5],
31 incorporating insights derived from studies on culturally sensitive communication
32 interventions. Additionally, we undertook the novel task of developing and evaluating a
33 customised intervention programme specific to rheumatology. Given the unique
34 manifestations of rheumatological conditions compared to other chronic ailments, healthcare
35 HCPs must possess specialised skills to effectively engage with patients in this context. The
36 intervention programme developed as part of this project encompassed patient role plays
37 that focused on disease-specific concepts, enabling HCPs to reflect upon and navigate
38 challenging scenarios.
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Methods

We report data aligned with the SQUIRE (Standard for Quality Improvement Reporting Excellence) guidelines version 2.

(<https://www.equator-network.org/reporting-guidelines/squire/>).

Study Design: Before and after study design to assess the effect of the culturally sensitive intervention.

Content development of the culturally sensitive intervention programme

The culturally sensitive communication intervention aimed to support rheumatology HCPs to further develop their communication skills, specifically around cultural sensitivity, shared decision-making, and attention to health literacy. Developmental was in three parts: stage 1: lessons from the current data, stage 2: content planning with the independent group and, stage 3: recording and creating the intervention.

Lessons from the literature

Before developing the content for the intervention, we reflected on the current studies [1-3,5]. We used a stepwise methodology to identify the highest quality evidence hierarchically and systematically. Using an iterative team approach as outlined by Arksey & O'Malley [11], we focussed on reaching consensus, clarity of purpose and balance between breadth and comprehensiveness of the review in addressing cultural competency intervention. This process involved input from a team outlined below.

Public patient involvement and engagement

Taxonomy – we employed the WHO 2009 definition for a taxonomy [12]: “a system for organising information or naming and organising items into groups that share similar characteristics”, in this case, information around cultural competency and clinical variables being impacted in the review. We took the compiled list from the literature review [1-3,5] and assembled an independent group including three clinicians, and three patient partners to explore the complexity and challenges in engaging with the diverse population to capture the full range of contributory factors across the care pathway. A list was compiled detailing: where the communication problem occurs, the stage of healthcare delivery that the problem relates to (for example we explored the diagnosis, medication adherence, and promoting self-

1
2
3 management) and the prevalence of the problem (for example we explored if certain types
4 of culturally related communication failings had worse patient outcomes).
5
6

7 **Developing the intervention**

8
9
10 The research team with expertise in behavioural science, clinical, communication and
11 ethnicity together with the independent group identified areas in the consultation where
12 skills could be used to tailor the interaction and enhance patient-centredness. The
13 independent group suggested online delivery of the intervention, as it would be more flexible
14 and practical, saving clinicians' time and minimising the costs of delivery. This method of
15 delivery was favoured particularly due to the post-pandemic era, importantly an online
16 delivery would increase the useability and broader implementation. Key findings from the
17 independent group and evidence base were synthesised and themes were identified from the
18 cultural factors, relevant to the UK context. This was used to drive the content of the
19 rheumatology-focused intervention programme (disease-specific related content, attitude of
20 HCPs to cultural skills, collaboration and teamwork, effective communication skills,
21 knowledge, skills and performance, society and culture) to the online intervention
22 programme was developed using rheumatology clinical scenarios.
23
24
25
26
27
28
29
30
31
32
33

34 The programme comprised the following topics, with a total duration of around 90 minutes:
35 brief presentations, reflections, shared experiences by patient representatives and role plays
36 working with a patient partner to demonstrate the challenges of communicating diagnosis or
37 treatment with a patient from a minority ethnic background. The content specifically
38 addressed how HCPs can manage culturally related expectations; attitudes and illness beliefs,
39 using scenarios and videos of patients, enabling HCPs to address complex issues via case
40 studies. Learners were then given some ideas of how to address these challenges and
41 optimise a person-centred approach; were to: (1) identify working definitions of "culture" and
42 "cultural diversity"; (2) support HCPs to reflect on their own attitudes and perceptions
43 (including personal bias) and practices of working with different groups within society ; (3)
44 Identify how practitioner culture may influence clinical practice; (4) Reflect on behavioural
45 models and their use of the clinical practice. (5) Compare and contrast the clinical scenarios,
46 observing effective interventions to create culturally appropriate services; (6) Reflect on
47 communication strategies including motivational interviewing; (7) Reflect on chronic disease
48 models and integration of those in the ethnic population; (8) Apply this knowledge and
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3 attitudes to their clinical practice via a series of exercises, noting issues arising from cultural
4 diversity.
5

6 7 **Delivery**

8
9
10 Once the content was fully developed, a media specialist assisted with the recording, editing,
11 and creation of an online link for the culturally sensitive intervention programme.
12

13
14 Ethical approval was granted by the East of England Cambridge South Research Ethics
15 Committee (300582). HCPs and patients gave written consent before participating in the study
16 once they had the opportunity to ask questions.
17
18

19 20 **Recruitment**

21
22 *Clinicians' inclusion criteria:* HCP running rheumatology clinics.
23

24
25 HCPs were recruited from four NHS sites in England serving a diverse population. Following
26 the initial email contact to the department offering uptake of the intervention, HCPs who
27 expressed an interest were asked to contact the research team. Consent was obtained before
28 commencing the study.
29
30

31
32
33 *Patients' inclusion criteria:* patients attending the HCP clinics who agreed to take part in the
34 study.
35

36
37 Letters to patients were sent before the hospital visit alerting them of their HCPs undertaking
38 an intervention programme to enhance communication during the consultation. Patients
39 were given contact details for the research team. Those who expressed an interest were
40 approached at the clinic appointment and written consent was obtained once they had the
41 opportunity to ask questions. Some patients had telephone consultation appointments
42 therefore, the consent was sent via the post and questionnaires were read to patients over
43 the telephone. In terms of patient recruitment, patients from "all" ethnic backgrounds were
44 in a convenience sample to determine if HCPs' interaction varied between groups. Patients
45 self-reported their ethnicity.
46
47
48
49
50
51
52
53

54 55 **Data collection from HCPs**

56
57
58 HCPs who showed an interest in each centre were enrolled on the study. Before receiving the
59 link to the intervention, all patients were invited to join the study and were allowed a week
60

1
2
3 to think about taking part. Data from a convenience sample of 200 patients were required
4 before the HCPs undertook the intervention, as a baseline. The HCPs were then offered the
5 intervention programme, through an online link and were given one week to complete the
6 online intervention, which took around 90 minutes to complete. Each HCP confirmed once
7 training had been completed by sending an email to the Research Associate. Due to clinic
8 appointments and the length of follow up, we were not able to recruit the same patients to
9 complete the questionnaires (before and after).

10
11 Patients were given two questionnaires: (1) Patient-Reported Physician Cultural Competency
12 (PRPCC)[13]: (2) Patient Enablement Instrument (PEI)[14]: to rate the interaction. In total, 200
13 patients were recruited before the HCPs undertook the intervention and a further 200
14 (different) patients completed the questions after the HCPs' intervention was complete.

15 16 17 **Sample size**

18 Since there are no culturally sensitive interventional studies in rheumatology, the sample size
19 in this project was derived with two aims in mind, assuming 30% of the patient population to
20 be South Asian: 1) to generate a standard deviation in the South Asian patients, and to be
21 able to perform a multiple linear regression adjusting for four factors.

22 23 24 **Questionnaires**

25 The HCPs completed the validated capability COM-B questionnaire (C), opportunity (O) and
26 motivation (M) to perform a behaviour (B) before and after intervention [15]. The use of the
27 COM-B questionnaire enabled us to evaluate the success of the intervention.

28 Our literature review reflection identified the most used valid questionnaires used when
29 testing a culturally tailored programme to be the Patient Reported Physician Cultural
30 Competency tool (PRPCC) [13]. This tool, also favoured by our patient steering group was
31 initially developed for diabetes and has been shown to be valid, reliable and responsive [5].
32 The tool asks patients to report on the frequency of 13 HCP behaviours previously identified
33 as being important for cultural competency. All responses were scored on a Likert scale
34 [1=never to 5=always]. An overall mean score (ranging from 1 = answered "never" to all
35 questions to 100 = answered "always" to all questions) can then be generated using the
36 following formula: $\left(\frac{\text{Overall score}}{13} - 1\right) \times 25$. In addition to the overall score, there are two
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

1
2
3 subscales within the PRPCC. History taking questions (1 to 5) and explaining (6 to 13). These
4 subscales can also be transformed to give a mean score (ranging from 1 to 100).
5
6

7 The second questionnaire, the 6-item Patient Enablement Instrument (PEI) [14] measured
8 'enablement', a construct that is related to, patient experience and satisfaction since it
9 measures whether there has been any achievement of specific health gain, rather than
10 focusing on the extent to which expectations relating to the process of care delivery have
11 been met. Our patient steering group preferred this, as it captured patients' level of
12 motivation to live with a long-term condition and the encouragement they feel has been
13 provided by the HCPs. Patients found the questionnaire user-friendly as such it was a short
14 tool to complete. The questions have five response categories "much more/better" (score=2),
15 "more/better" (score=1), "same", "less" or "not applicable" (all score =0). Therefore, the
16 mean PEI score ranges from 0 to 12 points, with a score of 6 or more being considered 'good'.
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Statistical analysis

The primary measures were PRPCC [13,14] and PEI. Data are described as counts and percentages (categorical variables) and medians with interquartile ranges or means and standard deviations (continuous variables). Comparisons between cohorts were performed using Kruskal Wallis test or unpaired t-tests for continuous variables and Chi square test for categorical or Fishers' exact test in the case of small numbers. Tests used are referenced in each table legend. For the COM-B analysis, a paired t-test was used. A multivariable linear regression was generated for with the overall scores for the PRPCC and PEI as the dependent variable and all demographic variables and cohort as explanatory variables. All analyses were performed in Stata SE 15.1.

Results

Patient characteristics

The HCPs were a mixture of rheumatology consultants (4), trainee doctors (4), nurses (4), and allied health professionals such as physiotherapists (3). In total, fifteen HCPs were recruited and 400 patients for this study (**Table 1**). The HCPs ranged from different backgrounds, such as White, Chinese, and South Asian. COM-B scores indicated HCPs felt more capable, motivated and perceived greater social opportunities to deliver culturally sensitive care after intervention (**Table 2**). 200 patients were recruited before HCPs undertook the intervention (cohort 1), 200 were recruited after (cohort 2) from fifteen clinics. Data were collected from patients presenting from all ethnic backgrounds. However, there were very few patients from Black and European backgrounds (before=22) and (after=14). We could not draw any meaningful results from the small numbers therefore were excluded from the analysis. Thus, results are described for total of 178 (cohort 1) and 186 (cohort 2) patients.

Patients in the two cohorts were reasonably well matched in gender ($p=0.6$), employment status ($p=0.1$), country of birth ($p=0.7$), language spoken ($p=0.8$). No significant differences were noted in the average overall PRPCC score between the two cohorts in White patients (57.3 vs 56.8, $p=0.8$). However, in the South Asian patients, average PRPCC scores were higher in cohort 2 compared to cohort 1 (64.1 vs 56.7, $p=0.014$). PEI scores also improved significantly in cohort 2 compared to cohort 1 (7.3 vs 4.3, $p<0.001$) in the White patients; and the percentage of the White increased from 27.5% to 65.0%. Similarly, there was a significant increase in the average PEI score in cohort 2 compared to cohort 1 (8.0 vs 2.2, $p<0.001$), in the South Asian patients (**Table 1**). 33 patients who were not able to complete the questionnaires in English both the PRPCC and PEI were audio recorded verbatim on a Dictaphone by the research team in Hindi (commonly understood by many South Asian people) using established guidelines. The audio recording was then played to our patient partners for verification and clarity. They tested the questionnaires using the audio recording and did not encounter any issues. Using Cronbach's alpha, the responses made by those who read the questionnaires in English and those who listened to the audio recording were compared and were not statistically different. Patient demographics such as age, gender, ethnicity, employment, country of birth, and language spoken were collected. Two patients

1
2
3 only completed the first five questions of the PRPCC and were excluded from the PRPCC
4 analysis. Other missing responses were scored as 0.
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

COM-B questionnaire

Before and after intervention, the COM-B scoring did not change for the opportunity for engaging South Asian patients, indicating limited information and resources. However, a difference in HCPs' scoring for the remaining questions was noted after intervention, indicating HCPs felt more skilled and equipped for consultations. On average HCPs indicated they served between 40-65% of patients from a diverse background in their clinics (**Table 2**).

Patient Reported Physician Cultural Competency univariable and regression model

There was no statistically significant difference in the average overall PRPCC score between the two cohorts in White patients (57.3 vs 56.8, $p=0.8$), nor in the sub-domains score (**Tables 3&4**). There was however, a statistically significant improvement in mean PRPCC score in cohort 2 compared to cohort 1 (64.1 vs 56.7, $p=0.014$) in the South Asian patients, suggesting the intervention had made a significant difference to the HCPs skills, when rated by their patients. When examining the mean scores in the sub-domains, there was no significant difference in history-taking (45.3 vs 40.2, $p=0.2$), however there was a significant difference noted in the explaining sub-domain (75.9 vs 67.1, $p=0.005$), which involved communicating and ensuring that the patients understood what the HCP was saying. A high proportion of both White and South Asian patients reported that the HCPs never informed them about available help in the community and patient support groups. The significant difference between the cohorts remained after adjusting for age, sex, and employment status in South Asian patients. Although the intervention made a difference to all patients, South Asian patients noted a beneficial impact to consultation after the HCPs had undertaken the intervention (**Tables 3 & 4**).

Patient Enablement Instrument univariable and regression model

Significant increases were noted in the average overall PEI scores in cohort 2 compared to cohort 1 (7.3 vs 4.3, $p<0.001$), in the White patients; and the percentage of White respondents who scored at least six (deemed 'good') increased from 27.5% to 65.0% (**Tables 3 & 4**).

Similarly, there was a significant increase noted in the average overall PEI score in cohort 2 compared to cohort 1 (8.0 vs 2.2, $p<0.001$), in the South Asian patients; and the percentage of White respondents who scored at least six ('good') increased from 12.1% to 71.2%, indicating that the patients reported being more capable of understanding and coping with

1
2
3 their health issues in cohort 2 than in cohort 1. In cohort 1, 20-30% of South Asian patients
4 stated that they felt better or much better as a result of their visit to the doctor, whereas in
5 cohort 2, this increased to 70-90%. These differences remained statistically significant even
6 after adjusting for age, gender, and employment status.
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Discussion

The culturally sensitive communication intervention in this study exhibited statistically significant enhancements in the cultural competence of HCPs. Notably, this is the first study to develop and assess a culturally sensitive intervention programme specifically tailored for rheumatology practice, leading to notable improvements in the PRPCC and PEI, as reported by patients of South Asian origin. These findings offer a promising avenue for potential improvements in medication adherence and the facilitation of shared decision-making in patient care.

HCPs displayed a commendable willingness to motivate individuals from minority ethnic backgrounds, but they also reported to face resource constraints within their respective departments. The innovative nature of our intervention highlights the value of incorporating psychological and behavioural change strategies, enabling HCPs to effectively understand and address the unique needs of patients from diverse cultural backgrounds.

Our project builds on existing work [1,3,5] on better understanding cultural dynamics in consultations. Like other specialities, rheumatology HCPs should also have access to cultural intervention if we are to bridge the health inequalities and improve patient outcomes. Despite NHS services offering short courses on cultural intervention to HCPs upon joining posts, HCPs report remaining inadequately trained. This suggests a need to evaluate and review the content and measure the impact this has on HCPs' skills and patient outcomes. It also adds to existing calls for all undergraduate health degrees to ensure adequate culturally sensitive intervention for better preparedness to work with diverse populations in future practice [16]. In our previous study, rheumatology HCPs reported that undergraduate education only scratched the surface of cultural sensitivity interventions and did not adequately prepare medical students for future practice [10]. In that study, rheumatology HCPs also reported junior doctors' intervention lacked such content and were at risk of contributing towards widening health inequalities, due to their sub-optimal consultation skills. Moreover, improving HCPs' education through targeted cultural skill-building is crucial as people from minority ethnic backgrounds receive inequitable care in the early inflammatory arthritis clinics [7] and have been noted to display different patterns of engagement at the start of the disease journey [7]. Consequently, such intervention could lead to direct translational implications in reducing disparities among diverse rheumatology

1
2
3 patient groups. To ensure this agenda reaches educational commissioners, the next steps
4 would be to test the long-term impact and cost-effectiveness of this intervention, however,
5 this would take time and the results show that with a brief (90-minute) intervention package,
6 clinicians can improve their clinical competency and crucially, their patients' experiences.
7
8
9

10 11 **Limitations**

12
13 We acknowledge the potential limitations in this study. It is plausible that HCPs who
14 participated in the study were those driven by a motivation to address health inequalities,
15 while certain HCPs might have lacked the confidence to partake in the study. Moreover, the
16 demanding nature of clinical workloads could have posed obstacles for some individuals to
17 engage in the study. Furthermore, the recruitment of patients failed to adequately represent
18 other ethnic groups, including African-Caribbean, Somali, and Chinese populations. The
19 duration of the intervention was insufficient to assess the longitudinal impact on the HCPs'
20 enduring skills or measure outcomes such as enhanced medication adherence. Consequently,
21 a subsequent longitudinal investigation is imperative in the future.
22
23
24
25
26
27
28
29

30 31 **Conclusion**

32
33 Our findings make a noteworthy contribution to the advancement of cultural competency
34 interventions centred around behavioural change. Importantly, we have made the
35 intervention programme freely accessible for implementation within the broader realms of
36 the British Society for Rheumatology, the European Alliance of Associations for
37 Rheumatology, and the American College of Rheumatology registrations, thereby fostering
38 wider dissemination and utilisation of this valuable resource.
39
40
41
42
43
44

45 46 **Acknowledgements**

47 We thank all patients for taking part in the study and staff at the participating organisations
48 for their support for the study, patient partners, all Principal Investigators, Dr Tom Sheeran,
49 Royal Wolverhampton NHS Trust, Dr Nicola Gullick, University Hospitals Coventry and
50 Warwickshire NHS Trust, Dr Chandini Rao, Lancashire, and South Cumbria NHS Foundation
51 Trust, Dr Lee-Suan The, East Lancashire Hospitals NHS Trust.
52
53
54
55
56
57
58
59
60

1
2
3 **Funding**
4

5 This grant was funded by the Global Pfizer, US (grant number 63189057). The funder had no
6 role in study design, data collection and analysis, decision to publish, or preparation of the
7 manuscript.
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Disclosure statement

KK has received a consultancy fee from AbbVie, Jansen, and Pfizer for presenting. CA is supported by the NIHR Manchester Biomedical Research Centre and NIHR Greater Manchester Patient Safety Translational Research Grant. SD has received honoraria from Janssen and Boehringer Ingelheim. The other authors have declared no conflicts of interest.

Data availability statement

Data will be provided by the corresponding author on reasonable request.

Table 1 Patient demographics comparing the two cohorts in patients who identify as either White or South Asian

		White patients			South Asian patients		
		Cohort 1	Cohort 2	p-value	Cohort 1	Cohort 2	p-value
	n	120	120		58	66	
Age	median (IQR)	58.5 (45-68.5)	57 (47-62)	p=0.316 ¹	57.5 (50-61)	49 (38-59)	p=0.005 ¹
Gender	Female	83 (69.2%)	78 (65.0%)	p=0.492	53 (80.3%)	45 (77.6%)	p=0.711
	Male	37 (30.8%)	42 (35.0%)		13 (19.7%)	13 (22.4%)	
Employment	In some form of employment	71 (59.2%)	78 (65.6%)	p=0.309	46 (69.7%)	43 (74.1%)	p=0.584
	Not in employment	49 (40.8%)	41 (34.5%)		20 (30.3%)	15 (25.9%)	
Country of birth	UK	116 (96.7%)	112 (93.3%)	p=0.102 ²	35 (53.0%)	34 (58.6%)	p=0.966 ²
	India	1 (0.8%)	0		16 (24.2%)	14 (24.1%)	
	Pakistan	0	0		9 (13.6%)	6 (10.3%)	
	Europe	2 (1.7%)	8 (6.7%)		1 (1.5%)	0	
Language Spoken	Other	1 (0.8%)	0	p=0.316 ²	5 (7.6%)	4 (6.9%)	p=0.533
	English	119 (99.2%)	120 (100%)		51 (77.3%)	42 (72.4%)	
	Not English	1 (0.8%)	0		15 (22.7%)	16 (27.6%)	

¹Kruskall Wallis test used to determine p-value, ²Fisher's exact test used to calculate p-value, otherwise a Chi-squared test is used.

Table 2 Results from the COM-B questionnaire given to healthcare provider prior to and after they received the intervention.

	Pre	Post	p-value
Physical opportunity	10.3 (9.9)	10.6 (10.2)	p=0.265
Social opportunity	26.4 (11.0)	64.9 (9.4)	p<0.001
Motivation	55.9 (11.8)	77.1 (10.8)	p<0.001
Automatic motivation	61.5 (14.7)	81.9 (9.9)	p<0.001
Physical capability	54.6 (7.2)	87.0 (6.2)	p<0.001
Psychological capability	55.1 (5.6)	91.9 (5.9)	p<0.001

*On average HCPs indicated they served between 40-65% of patients from a diverse background in their clinics.

Mean (standard deviation) for each question is given, along with results of a paired t-test.

Table 3 Results from both sets of questionnaires by ethnicity, the cohort mean score (standard deviation) given unless otherwise specified

	Cohort 1	Cohort 2	p-value
White			
PRPCC Overall Score	56.8 (14.7)	57.3 (21.9)	p=0.849
History-taking sub-domain	31.5 (18.2)	36.6 (22.5)	p=0.056
Explaining sub-domain	72.5 (15.9)	70.2 (24.9)	p=0.407
PEI Overall Score	4.3 (3.4)	7.3 (3.9)	p<0.001
PEI score ≥6*	33 (27.5%)	78 (65.0%)	p<0.001
South Asian			
PRPCC Overall Score	56.7 (16.0)	64.1 (16.6)	p=0.014
History-taking sub-domain	40.2 (19.1)	45.3 (24.1)	p=0.196
Explaining sub-domain	67.1 (16.0)	75.9 (17.6)	p=0.005
PEI Overall Score	2.2 (3.3)	8.0 (3.4)	p<0.001
PEI score ≥6*	7 (12.1%)	47 (71.2%)	p<0.001

Two patients were excluded from the PRPCC analysis as they only completed five questions. *- this is a count and percentage, p-values have been calculated using Chi-squared test. P-values otherwise are calculated using unpaired t-tests. The PRPCC overall score, history-taking and explaining sub-domains ranges from 0-100, the PEI overall score ranges from 0-12.

Table 4 Results from multivariable analysis, looking at the overall score of each of the questionnaires

	PRPCC Score				PEI Score			
	White		Asian		White		Asian	
	β (95% CI)	p-value	β (95% CI)	p-value	β (95% CI)	p-value	β (95% CI)	p-value
Age	-0.10 (-0.27, 0.07)	p=0.233	0.01 (-0.02, 0.05)	p=0.468	0.01 (-0.02, 0.05)	p=0.468	0.08 (0.03, 0.13)	p=0.004
Male Gender	4.64 (-0.45, 9.74)	p=0.074	-0.68 (-1.68, 0.32)	p=0.183	-0.68 (-1.68, 0.32)	p=0.183	3.26 (1.89, 4.63)	p<0.001
Not in employment	5.89 (0.46, 11.31)	p=0.034	0.04 (-1.03, 1.11)	p=0.942	0.04 (-1.03, 1.11)	p=0.942	-1.16 (-2.52, 0.19)	p=0.091
Cohort 2	0.28 (-4.48, 5.05)	p=0.907	3.02 (2.08, 3.96)	p<0.001	3.02 (2.08, 3.96)	p<0.001	6.54 (5.38, 7.70)	p<0.001
R ²	0.0299		0.1815		0.1544		0.5405	
Adjusted R ²	0.0132		0.154		0.141		0.525	

References

1. Govere L, Govere EM. How Effective is Cultural Competence Training of Healthcare Providers on Improving Patient Satisfaction of Minority Groups? A Systematic Review of Literature. *Worldviews Evid Based Nurs* 2016;**13**(6):402-10.
2. Beach MC, Price EG, Gary TL, et al. Cultural competence: a systematic review of health care provider educational interventions. *Med Care* 2005;**43**(4):356-73.
3. Majumdar B, Browne G, Roberts J, et al. Effects of cultural sensitivity training on health care provider attitudes and patient outcomes. *J Nurs Scholarsh* 2004;**36**(2):161-6.
4. Stone MA, Amin S, Daly H, et al,. Developing and initially evaluating two training modules for healthcare providers, designed to enhance cultural diversity awareness and cultural competence in diabetes. *Diversity and Equality in Health and Care* 2013;**10**:177–84.
5. Sequist TD, Fitzmaurice GM, Marshall R, et al. Cultural competency training and performance reports to improve diabetes care for black patients: a cluster randomized, controlled trial. *Ann Intern Med* 2010;**152**(1):40-6.
6. Renzaho AM, Romios P, Crock C, et al. The effectiveness of cultural competence programs in ethnic minority patient-centered health care--a systematic review of the literature. *Int J Qual Health Care* 2013;**25**(3):261-9.
7. Adas MA, Norton S, Balachandran S et al,. Worse outcomes linked to ethnicity for early inflammatory arthritis in England and Wales: a national cohort study. *Rheumatology Oxford* doi: 10.1093/rheumatology/keac266; 2022; keac266
8. Kumar K, Stack R, Adebajo A, et al. Experiences of South Asian patients in early inflammatory arthritis clinic: a qualitative interview study. *Rheumatology Advances in Practice*. 2019; doi.org/10.1093/rap/rkz017
9. Kumar K, Raza K, Nightingale P, Horne R, Chapman S, Greenfield S, Gill P. Determinants of adherence to disease modifying anti-rheumatic drugs in White British and South Asian patients with rheumatoid arthritis: a cross sectional study. *BMC Musculoskeletal Dis*. 2015; 16-396.
10. Kumar K, RJ, Stack RJ, Adebajo A, Adams J. Healthcare professionals' perceptions of interacting with patients from South Asian background attending early inflammatory arthritis clinics" *Rheumatology Advances in Practice* 2019; <https://doi.org/10.1093/rap/rkz042>
11. Arksey H, O'Malley L. Scoping studies: Towards a Methodological Framework. *Int J Soc Res Methodol*. 2005;**8**:19–32. doi: 10.1080/1364557032000119616
12. WHO. Conceptual framework for the international classification for patient safety v1.1 World Health Organisation, 2009
13. Thom DH, Tirado MD. Development and validation of a patient-reported measure of physician cultural competency. *Med Care Res Rev* 2006;**63**(5):636-55.
14. Howie JG, Heaney DJ, Maxwell M, et al. A comparison of a Patient Enablement Instrument (PEI) against two established satisfaction scales as an outcome measure of primary care consultations. *Fam Pract* 1998;**15**(2):165-71.
15. Willmott T, Pang Bo, Thiele SR. Capability, opportunity, and motivation: an across contexts empirical examination of the COM-B model. *BMC Public Health*.2021;(21):1014; <https://doi.org/10.1186/s12889-021-11019-w>
16. Echeverri M, Chen A. Educational Interventions for Culturally Competent Healthcare: Developing a Protocol to Conduct a Systematic Review of the Rationale, Content, Teaching Methods, and Measures of Effectiveness. 2016 ; 9(1): 1160–1177