Differential attainment in the MRCPsych according to ethnicity and place of qualification between 2013 and 2018: a UK cohort study

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ABSTRACT

Purpose of the study To explore if differential pass rates exist in the clinical component of the UK postgraduate clinical psychiatry exam, the Clinical Assessment of Skills and Competencies (CASC), according to ethnicity and place of qualification (UK vs EEA vs overseas graduates).

Study design Observational study using data from the UK Medical Education Database for 2140 doctors sitting the CASC for the first time between 2013 and 2018.

Results After controlling for age, sex, time of sitting and performance in the written components of the MRCPsych, differences in CASC pass rates persisted between UK graduates self-identifying as Black and Minority Ethnicity (BME) and non-BME (OR for passing 0.36, 95% CI 0.23 to 0.56, p<0.001). Both EEA (OR 0.25, 0.15 to 0.40, p<0.001) and overseas graduates (OR 0.07, 0.05 to 0.11, p<0.001) were less likely to pass the CASC at first attempt, even after controlling for the influence of educational and background variables. These groups, on average, had lower scores on written exams with substantial content relating to procedural skills (eg, critical appraisal) rather than pure recall of factual knowledge.

Conclusions Substantial differences exist in clinical examination performance between UK BME and non-BME graduates. These differences are not explained by differing levels of clinical knowledge. In the interests of equality, this situation requires further investigation and remediation. Future research should focus on understanding how potential bias may be acting within different stages of recruitment, training and assessment within psychiatry.

INTRODUCTION

In order to practise as a Consultant Psychiatrist in the United Kingdom (UK) doctors generally must pass the MRCPsych (Membership of the Royal College of Psychiatrists) examination, which is set by the Royal College of Psychiatrists. The only exception to this is when doctors may be placed on the General Medical Council (GMC) specialist register for psychiatry via a Certificate of Eligibility for Specialist Registration. This alternate process involves providing evidence to the Royal Colleges of Psychiatrists that previous training and experience would be equivalent to that obtained by the normal membership route. Thus, postgraduate examinations, such as the MRCPsych, serve as the main gateways, and potential barriers, to advanced specialty practise. Consequently, it is vital that they are both rigorous, though fair, and not unduly disadvantageous to any specific groups or individuals. For this latter reason, there has been considerable interest in any differences in pass rates between groups of doctors for such examinations.

Such a differential pass rate at the practical component of the Royal College of General Practitioners membership examination, between British black and minority ethnic (BME) candidates and those self-identifying as white, has previously been reported. This difference persisted even after controlling for previous performance on the written, knowledge-based component of the examination. These findings led to (ultimately unsuccessful) legal action taken by the British Association of Physicians of Indian Origin (BAPIO), against the Royal College of General Practitioners and the GMC, who felt that they constituted evidence of institutional racial bias. However, the underlying reasons for such inter-group differences are still not fully understood, though they are likely to be related, at least partly, to subtle cultural issues. For example, a linguistic analysis of candidates sitting the practical component of the general practice examination, the ‘clinical skills assessment’, concluded that black and minority ethnic UK graduates may show some of the subtle differences in communication style also observed in non-UK doctors.

In addition, differential pass rates according to place of primary medical qualification have also been reported across a number of postgraduate clinical examinations. Indeed, differences in pass rates, between UK and overseas medical graduates, have previously been reported for the MRCPsych in 1999. Indeed, relatively reduced postgraduate academic performance across a number of markers has been observed for doctors graduating from countries other than that of their practise. For example, at the Annual Review of Competence Progression (ARCP) panels, which review progress in training for doctors, non-UK graduates were more likely to receive poor ratings. Moreover, the specialties with the largest disparities between groups were psychiatry and general practice. It was also notable that once the effects of postgraduate (membership) exam failures were removed, the degree of difference between graduate groups, in terms of ARCP outcomes, diminished substantially, though remained statistically significant. This suggests that such clinical exams could pose a specific hurdle to overseas doctors’ career progression.
Moreover, at the time it was hypothesised that these two specialties may have been the most sensitive to issues relating to culture and communication, especially in relation to the clinical components of the postgraduate examinations.

Understanding, and addressing, such differential attainment is a matter of priority for a number of key reasons. First, there is clearly a matter of social justice at stake, and if there is ethnic bias at work, even if it were unconscious bias, then it should be remediated immediately. Second, in Western countries, such as the UK, psychiatry is a less popular specialty than most. For example, during the 2019 recruitment round only 86% of ‘core’ (basic) psychiatric training places were filled across England, though this is a marked increase over previous years.12 This has led to a heavy reliance on doctors who qualified overseas; over 40% of UK psychiatrists graduated from outside of the country.13 Thus, if clinical examinations are a barrier to career progression for overseas and ethnic minority doctors this presents a major workforce issue. The Royal College of Psychiatrists is aware of these issues and has already taken steps to help ensure that the membership examination is as fair as possible.14 The availability and linkage of data relating to place of qualification, ethnicity and postgraduate academic achievement, via the UK Medical Education Database (UKMED) now makes a detailed study of differential attainment in psychiatry possible.15 Thus, we are in a position to evaluate the extent to which any differences in performance between groups of candidates persist, and consider what further investigations and other measures may be required to address these.

Psychiatric specialty training in the UK

Recruitment to UK-wide specialty training (excluding Northern Ireland) is currently organised by Health Education England via the National Psychiatry Recruitment Office. Once a doctor completes the initial 2-year ‘Foundation Programme’ after qualifying, they may apply for a place on a specialty training scheme. In psychiatry, ‘core’ training lasts 3 years and is usually made up of 6-month approved, supervised training placements, rotating through a variety of specialties (eg, learning disability, older people’s psychiatry, etc.). During this period, a trainee will aim to pass all parts of the MRCPsych, which are required for progression to higher psychiatry training in one or two psychiatry specialties that the trainee wishes to work in as a consultant, for example, general psychiatry.16 Successful completion of the training placements, as evaluated by the doctor’s e-portfolio, which includes workplace-based assessments and feedback, and passing the MRCPsych permits an application to be made to ‘higher specialist training’. This usually comprises 3 years of further supervised experience in 9–12 months blocks within a psychiatric specialty. Successful completion of this stage of training results in an award of a ‘certificate of completion of training’. This entitles the doctor’s name to be placed on the list of specialists held by the GMC (the UK medical regulator) and to apply for Consultant grade roles with healthcare providers.

The route for non-UK graduates often differs from this, although depending on prior experience, overseas doctors may join this pipeline at different stages. Currently, doctors graduating from a recognised institution within the European Economic Area (EEA) do not have to provide evidence of language fluency in English or have to pass the Professional and Linguistic Assessment Board (PLAB) examinations. In contrast, this requirement must be met by most overseas (non-EEA) doctors seeking UK-based medical training and registration. To take the PLAB examinations, overseas medical graduates must provide evidence of language competency in English. This usually means having obtained sufficient scores on the International English Language Test System (IELTS). The IELTS is made up of four parts—listening, speaking, reading and writing—and can be taken as many times as desired.17 Each part is rated between band one (non-user) and band nine (expert user). In order to be eligible to sit the PLAB examination an IELTS score of at least 7.0 on each part is required with an overall rating of 7.5 achieved, recently raised from the need for an overall score of 7.0. The PLAB examination is designed to ensure that overseas doctors demonstrate the clinical competencies equivalent to those that a UK graduate would be expected to have obtained by the end of the first foundation year when they are eligible for full registration with the GMC. Thus, successful PLAB graduates are able to apply for foundation year 2 posts in competition with both UK and EEA medical graduates. Some overseas graduates may be able to provide evidence of previous experience which allows them to apply straight for specialty training without completing the second year of the foundation programme.18

MRCPsych examination

This postgraduate examination, which must be passed in order to become a full member of the Royal College of Psychiatrists and progress to higher specialist training, is made up of several components. Over the last decade or so some changes have been made to the structure of the MRCPsych. From March 2008, it was composed of three written exams and a practical exam, the ‘Clinical Assessment of Skills and Competencies’ (CASC). The three written exams (Papers 1 to 3) contained selected response questions, with both single best answer and ‘extended matching’ formats. These written tests evaluated knowledge of relevant basic science, research evidence, clinical psychiatry and medical statistics. Changes were made in 2015 so that only two written papers were taken, Papers A and B. As a transitional arrangement, in order to accommodate candidates who had previously passed Papers 1 or 2, Paper A was split into two halves (AI and AII), covering different aspects of the MRCPsych syllabus.19 Paper A tests knowledge of the science and theory underpinning psychiatric practice (behavioural and social sciences, human development, neuroscience, psychopharmacology and psychiatric classification). Paper B tests knowledge of critical appraisal of research evidence and clinical topics relevant to all the psychiatric specialties. The CASC uses the format of an Objective Structured Clinical Examination (OSCE), made up of two (morning and afternoon) circuits of stations designed to evaluate a candidate’s clinical skills. In the morning circuits, candidates have 4 min to read any instructions for the station and 7 min to complete the task. In the afternoon, this becomes 90 s of reading and, again, 7 min to complete the task. In total, there are 16 CASC stations, which test ‘history taking’, ‘examination’ (physical and mental) and ‘management’. The scoring system and pass standard for the CASC employs the borderline regression method.20 In the case of the CASC, this means that each station is marked by a trained examiner who provides two sets of scores. The first is a five-point ‘analytic’ global domain score, ranging from 1 (‘poor’) to 5 (‘excellent’) for between three and five domains. The second is a 6-point overall global judgement: ‘Excellent Pass’, ‘Pass’, ‘Borderline Pass’, ‘Borderline Fail’, ‘Fail’ or ‘Severe Fail’, which have associated grade descriptors to help anchor them. The total weighted domain scores are then regressed onto their global scores to produce a linear (regression) equation for each station for all candidates. The total domain score for borderline candidates, determined through the ‘line of best fit’ is used to set the pass mark for that station. The pass mark for the whole exam then is calculated as the average of the station pass marks for that day.
with the addition of the standard error (SE) of measurement. In order to pass the CASC a candidate must achieve a passing score in at least 12 of the 16 stations and meet or exceed the overall total borderline regression score set. Thus, high scores on some stations will not necessarily compensate for low scores in others. The minimum of 12 stations as a pass standard was set on the basis that the five history taking and five examination stations cover basic clinical skills and that a ‘borderline pass’ candidate should be expected to pass eight out of these 10 stations. Six of the stations relate to clinical management and a ‘borderline pass’ candidate was expected to pass four out of these six stations.21 The CASC is thus administered according to accepted standards of practice in the area of clinical educational assessment. A previous study reported that, 3 years after its introduction, candidates and examiners were somewhat divided regarding whether the examination evaluated all the advanced skills required to practise effectively as a psychiatrist.22

The aim of this study was to examine two distinct, though overlapping issues, related to differential attainment in the MRCPsych. First, to examine whether self-reported ethnicity was associated with lower pass rates at the MRCPsych in UK medical graduates, and in particular at the CASC, and whether any differences persisted after controlling for potential confounding factors. These latter factors would also include performance in the written, knowledge-based parts of the examination. Second, whether world region of qualification (UK, EEA or non-EEA ['Overseas']) was associated with differential pass rates at the MRCPsych, and, again, to what extent these were independent of potentially confounding factors. Our findings would have implications for both the education and support of psychiatrists in training, as well as medical regulatory policy relating to doctors qualifying outwith the UK.

METHODS

As stated above, our primary aim was to describe the pass rates at the CASC for UK medical graduates according to their self-reported ethnicity (BME vs non-BME). A secondary aim was to explore the impact of world region of qualification (UK vs EEA vs Overseas) on CASC pass rates. In terms of implications for policy and practice, it is the raw (unadjusted) results from univariable analyses of pass rates that matter most—that is, those apparent before adjustment is made for any potential confounding factors. However, we also sought to evaluate the degree to which the main effects of interest (ethnicity and place of qualification) were independent of potential confounding factors. For this reason, the effects of several key demographic and educational factors, known to be associated with postgraduate educational performance (such as candidate gender and age), were also controlled for.

Data sources and preparation

All data were held and linked within the UKMED which then provides research extracts in a Safe Haven.23 With a Safe Haven, data are managed and analysed within a remote secure server from which only reports on aggregated data can be extracted. Note also that UKMED statistical disclosure controls stipulate that all numbers included in public documents are rounded to the nearest five.21 This blunting has been applied to all numbers cited in this report. The flow of data through the study is shown in figure 1. As the study used routinely collected, de-identified data, ethical approval was not required. This was confirmed in writing by the Chair of the University of York Health Sciences Ethics Committee. Moreover, individual informed consent for the use of the data was not required for this study. This is because all the data used were held within the UKMED. The use of personal data in UKMED is not reliant on individual consent from data subjects, as it is not a necessary condition for processing under the General Data Protection Regulation (GDPR), which allows personal data to be used without consent where it is necessary for statutory functions. The Medical Act 1983 gives the General Medical Council (GMC) a legal responsibility to promote high standards of medical education and co-ordinate all stages of medical education. This enables the creation of the database and the disclosure of data by other providers in compliance with the GDPR. For more information, see URL: www.ukmed.ac.uk/faq.

The primary outcome for this study was the odds of passing the CASC at first attempt. The UKMED contained data on 2140 registered doctors with such an outcome reported for a first attempt at the CASC. The UKMED holds Royal College Examination data from those who sat such tests from 1 August 2013. Doctors are identified as being in psychiatric training according to the specialty recorded by the deaneries in their returns to the GMC that allow the GMC to administer the National Training Survey,24 which is conducted annually by the regulator.25 Only the first attempts were analysed, for two reasons. First, the first attempt at an examination is considered to be
the best marker of true underlying ability, with the subsequent probability of passing increasingly capitalising on chance/practise effects. Second, UKMED holds data on all UK registered doctors who entered medical school from 2002 or joined postgraduate training schemes from 2012. Thus, given this timescale, the majority of doctors represented in UKMED who had attempted the CASC had done so only once. For example, while there was an outcome recorded for first attempt for 2140 doctors, there was only one for second attempt in 590 cases.

The primary outcome for this study was performance on the CASC part of the MRCPsych. This was because previous concerns relating to possible ethnic bias in the Membership of the Royal College of General Practitioners (MRCGP) examination were related to the Clinical Skills Assessment, as the clinical component, rather than the written knowledge test. As these clinical examinations are judged by human raters there is more scope for such bias to occur compared with written tests, which are machine-marked. The individual marks on the CASC were not used as a continuous outcome for modelling purposes because, due to the usual standard-setting processes, raw scores did not equate directly to the pass/fail status. Thus, for modelling purposes, the odds of passing the CASC at first attempt, rather than overall mark achieved, was used as the (binary) outcome of interest. Moreover, the granularity of the data on CASC performance that were received by the UKMED from the Royal College of Psychiatrists varied across years.

As highlighted earlier, the structure of the written component of the MRCPsych has changed slightly during the study period. For this reason, in order to obtain an estimate of the overall academic performance of the doctors the scores obtained on each written paper, relative to the pass mark for that sitting, were averaged for each candidate across each paper taken to provide an overall metric of performance at the written component of the MRCPsych. A quantile (‘Q–Q plot’) demonstrated that these scores for performance on the written component approximated a normal distribution, except for relatively extreme values (15 points below, or 20 points above the pass mark).

However, numerous demographic differences also exist that need to be adjusted for, such as sex, age, nationality, ethnicity, English as a second language and IELTS scores. Nonetheless, these data are rather sparse for many of the variables. For example, 72% of the data were collected before 2007, and 42% were collected in 2009.

Scores for the IELTS and PLAB examination were also available from the GMC for the vast majority of doctors qualifying from outside of the EEA, referred to hereafter as ‘overseas graduates’ (see figure 1). Thus, the relationship between these variables and the odds of passing the CASC at first attempt were modelled.

### Statistical analyses

A series of binary logistic regressions were performed where the odds of passing the CASC at first attempt were estimated, according to each predictor variable. Initially, the raw (unadjusted) relationship between the predictors and outcome was explored using a series of univariable logistic regressions. Following this, a series of multivariable models were built, which included the potential confounding variables. As the main focus of the study was estimating the impact of ethnicity and place of qualification on MRCPsych performance, all relevant confounders were placed in the multivariable models. However, it should be noted that when modelling the independent effects of the predictors specific to overseas graduates, namely the IELTS scores and PLAB performance, only one component of these two assessments were placed in the multivariable model at a time, along with the other demographic and educational variables. This is because the IELTS and PLAB components are dependent on each other. For example, PLAB part 2 can only be taken once PLAB part 1 is passed. Also, some of the subtest scores of the IELTS tend to correlate highly with each other, risking substantial multicollinearity when entering them both in the same model. Trends over time were also explored by introducing a variable which represents the particular sitting of the CASC taken. As there are two sittings of the MRCPsych per year (spring and autumn) there were 10 sittings during the study period (autumn 2013 to spring 2018). As the structure of the written component changed considerably during the study period, and this portion of the MRCPsych was not the main focus of the study, time trends were only explored in relation to the CASC.

In order to estimate the potential impact of a change in regulatory policy, we conducted ‘simulation’ studies of a change in PLAB pass mark and IELTS requirements. This was performed by dividing overseas graduates into quartiles according to their performance at the most recent attempt at the PLAB part 2 examination and comparing their odds of passing CASC at first attempt with UK graduates. Similarly, the CASC pass rates of overseas graduates who had achieved at least of eight in each language domain on IELTS were compared with UK graduates. The numbers of overseas graduates in the sample precluded more fine-grained analyses in this respect.

Missing data were relatively few, with the exception of PLAB part 2 and written papers (see figure 1). PLAB part 2 scores were only present for 30% (n = 193) of the overseas graduates. Likewise, written test scores were missing for 37% of the overseas graduates, though only 19% of UK graduates. Therefore, values for the PLAB part 2 and written paper scores were imputed, where missing for overseas graduates, using chained equations. One hundred imputed datasets were created this way, with the imputed values informed by observed values for sex, age, overall, PLAB part 1 performance at first attempt and IELTS overall speaking scores (which were relatively complete). Thus, analyses which involved either PLAB part 2 scores or written tests scores...
for the overseas graduates were repeated using the imputed data-sets. These additional analyses were performed as a form of sensitivity analyses to assess the potential impact of the missing data on the results. Specifically, the analyses of the imputed data were used to indicate the extent to which any missing data were ‘missing at random’ - that is the missing values were related to the observed variable values. Otherwise, listwise deletion was used to deal with the variables with more sparse missing data.

All data management and analyses were conducted in Stata v14. The code is available from the lead author on request.

RESULTS

Table 1 depicts the demographic characteristics and educational performances for the different graduate groups, as well as a breakdown of the CASC pass rate, at first attempt, by sitting.

As can be seen, the CASC pass rate, at first attempt, was highest in UK graduates identifying as ‘white’ and lowest in overseas graduates (see also later). UK graduates identifying as BME tended to be slightly younger at the time of attempt at the CASC and were modestly more likely to be male, compared with those UK qualifying doctors identifying as ‘white’. In contrast, compared with UK graduates, overseas graduates were older and had been registered with the GMC for relatively longer at the time of the first sitting of the CASC. Compared with UK graduates they also had lower average scores on the written papers.

BME, Black and Minority Ethnicity; CASC, Clinical Assessment of Skills and Competencies; EEA, European Economic Area; UKMED, UK Medical Education Database.

For overseas graduates, IELTS scores tended to be distributed around the minimum scores required for eligibility to sit the

### Table 1 Sociodemographic characteristics and educational performance for the different graduate groups in the study sample (N=2140)

| World region of qualification and self-reported ethnicity (UKGs only) | White UKGs (n=940) | BME UKGs (n=350) | EEA graduates (n=155) | Overseas graduates (n=650) |
|---|---|---|---|---|
| Age in years (SD) at first attempt at the CASC (n=2140) | 31.74 (4.75) | 30.69 (2.99) | 34.85 (5.83) | 39.02 (5.42) |
| Years since UK registration at first attempt at the CASC (n=2140) | 5.52 (1.56) | 5.57 (1.58) | 9.29 (5.06) | 14.07 (5.12) |
| Male (proportion (%)) (n=2140) | 360/940 (38.1%) | 155/350 (44.3%) | 65/155 (42.0%) | 305/650 (46.7%) |
| CASC pass rate at first attempt* (n=2140) | 870/940 (92.9%) | 280/350 (79.4%) | 90/155 (57.3%) | 185/650 (28.6%) |
| Paper 1 pass rate at first attempt* (n=545) | 215/265 (81.6%) | 70/95 (74.0%) | 30/40 (70.0%) | 95/135 (70.8%) |
| Paper 2 pass rate at first attempt* (n=625) | 230/305 (75.6%) | 80/115 (71.3%) | 20/55 (38.9%) | 105/255 (40.5%) |
| Paper 3 pass rate at first attempt* (n=750) | 260/305 (84.0%) | 95/120 (80.6%) | 20/35 (66.7%) | 70/110 (63.1%) |
| Paper B pass rate at first attempt* (n=950) | 375/455 (81.2%) | 130/170 (75.6%) | 45/70 (65.7%) | 100/230 (42.2%) |
| Average score, relative to the pass mark, on written papers sat* (n=1600) | 6.54 (7.57) | 5.09 (8.19) | 1.77 (8.33) | 0.03 (8.43) |
| Proportion of candidates passing at first attempt for each sitting | | | | |
| Sitting | CASC pass rate at 1st attempt— all candidates* | CASC pass rate at 1st attempt—UK graduates* | CASC pass rate at 1st attempt—non-UK graduates* |
| Autumn 2013 | 210/425 (49.3%) | 145/170 (84.1%) | 65/255 (26.0%) |
| Spring 2014 | 110/175 (61.0%) | 85/105 (80.0%) | 25/70 (33.3%) |
| Autumn 2014 | 170/240 (71.8%) | 130/145 (89.6%) | 40/95 (43.3%) |
| Spring 2015 | 110/155 (70.1%) | 80/95 (96.5%) | 25/70 (33.3%) |
| Autumn 2015 | 160/205 (78.4%) | 140/155 (92.2%) | 20/50 (40.0%) |
| Spring 2016 | 120/180 (66.5%) | 95/110 (89.0%) | 20/70 (31.4%) |
| Autumn 2016 | 185/235 (78.8%) | 160/175 (91.5%) | 25/60 (40.0%) |
| Spring 2017 | 110/150 (73.8%) | 90/105 (87.5%) | 20/45 (42.2%) |
| Autumn 2017 | 180/220 (82.6%) | 165/180 (91.2%) | 15/35 (38.9%) |
| Spring 2018 | 105/155 (68.9%) | 90/100 (88.1%) | 19/55 (32.7%) |
| IELTS average scores (SD) (overseas graduates only) | | | | |
| Reading (n=440) | – | – | – | 7.63 (0.62) |
| Speaking (n=615) | – | – | – | 7.53 (0.60) |
| Listening (n=510) | – | – | – | 7.68 (0.61) |
| Writing (n=480) | – | – | – | 7.33 (0.51) |
| Overall score (n=615) | – | – | – | 7.40 (0.46) |

*Note that numbers have been rounded in line with UKMED statistical disclosure controls, so that percentage values will not correspond precisely to the proportions shown.23
PLAB examination. Indeed, the mean overall IELTS score for this group was only 7.4, slightly below the recently raised requirement for an overall mark of 7.5. We also noted that the mean scores (relative to pass) at first attempt for both part 1 (0.43, SD 19.59) and part 2 (3.56, SD 4.18) of the PLAB exam for this cohort were considerably lower than those reported for a more general cohort of overseas graduates registering with the GMC.27

In this latter case, the mean scores for PLAB part 1 were 7.47 (SD 19.29) and 6.00 (SD 4.58) for PLAB part 2 at first attempt. As can be seen, overall there is a general trend for the overall CASC pass rate, at first attempt, to have increased over the study timeframe. A logistic regression of this CASC pass rate against time of sitting (coded ‘1’ for autumn 2013 through to ‘10’ for spring 2018) yielded an odds ratio (OR) of 1.14 (95% CI 1.11 to 1.18, p<0.001). When analysed by group, modest time trends, of borderline statistical significance, were observed in this respect for both UK (OR 1.07, 1.00 to 1.13, p=0.037) and non-UK graduates (OR 1.05, 1.00 to 1.10, p=0.043). The flow of data through the study is shown in figure 1.

Ethnicity and MRCPsych performance in UK medical graduates

As can be seen in table 1, UK medical graduates who identified as of ‘white’ ethnicity had an average CASC pass rate, at first attempt, of around 93%. This contrasts with those UK graduates identifying as BME, where the average CASC pass rate at first attempt was approximately 79%. Although not the main focus of the study, it is informative to examine the pass rates, at first attempt, for the written parts of the MRCPsych for UK graduates, as this will reflect levels of clinical knowledge, as well as skills, such as examination preparation. As can be seen from table 2, those UK graduates identifying as BME had a lower odds of passing Paper 3 (OR 0.47, 0.28 to 0.78, p=0.004) compared with non-BME UK graduates. A number of univariable trends, relating to written examination performance and demographic factors, can also be observed. When the influence of these were controlled for in the logistic regression analysis the independent effect of self-reported ethnicity remained, if anything, increasing in magnitude (OR 0.44, 0.26 to 0.74, p=0.002). Other, independent influences of demographic factors on the written exam pass rates can also be observed, though are not the focus of the present study.

The results of logistic regression models for predicting CASC performance in UK medical graduates are shown in table 3. As can be seen, BME status was a both univariable (OR 0.30, 0.21 to 0.42, p<0.001) and independent predictor of reduced odds of passing the CASC at first attempt (OR 0.36, 0.23 to 0.55, p<0.001). The other educational and demographic factors were statistically significant univariable (p<0.05) predictors. However, in the multivariable model, only average, standardised performance at the written components of the examination, male sex and younger age at sitting were independent predictors of passing the CASC at first attempt.

World region of medical qualification and MRCPsych performance

The overall pass rates for non-UK graduates, especially for those from outside the EEA (‘overseas’), were generally considerably lower for first attempts at both the written and clinical components of the MRCPsych, compared to UK graduates (table 1). The results of the logistic regression models, for predicting success at first sitting for the written components of the examination, are shown in table 4. The results from univariable (unadjusted) analyses, with the main effect of interest being world region of qualification (UK vs EEA vs overseas graduates) are shown alongside those from a multivariable model, where the effects were adjusted for sex, age and clinical experience (years) at time of sitting. It can be seen that markedly lower pass rates at first attempts at written Papers ‘3’ and ‘B’ are present for non-UK compared with UK medical graduates. The coefficients for these effects change little, once the potential influence for sex, age and experience are accounted for. Thus, it appears, that the most marked differences between non-UK and UK medical graduates are observed for those written examination components with a procedural skills component, that may involve, for example, some knowledge of statistical methods and critical appraisal of relevant research.

Few differences between EEA and overseas graduates were observed, in terms of performance on the written components of the MRCPsych. Indeed, as can be seen in table 4, the only independent, statistically significant effect was observed for Paper B, with overseas doctors less likely to pass at first attempt than their EEA graduate counterparts.

The results for the models predicting the odds of passing the CASC at first attempt in trainee psychiatrists are shown in table 5. As can be seen, overseas medical graduates have much lower odds of passing the CASC at first sitting compared with EEA graduates, who, in turn, how much lower odds of passing compared with UK graduates. These effects relating to world region of primary medical qualification change little after conditioning on the potential confounding variables (performance in the written components, sex, age, experience and time of sitting). It can also be seen that, in general, males, and those registered with the GMC for longer also have relatively reduced odds of passing at first attempt, even after controlling for the influence of potential confounding variables. Taking the CASC more recently is also associated with increased odds of success at first attempt. Increasing age is associated with reduced odds of passing the CASC at first attempt on univariable analysis. However, this effect is reduced to virtually zero after conditioning on the other demographic variables, time of sitting and performance in the written component of the MRCPsych.

CASC, Clinical Assessment of Skills and Competencies; EEA, European Economic Area; IELTS: International English Language Test System; PLAB, Professional and Linguistic Assessment Board; UKMED, UK Medical Education Database.

As can be seen, table 5 also depicts the results from univariable and multivariable models exploring the predictors of CASC outcome at first attempt specific to overseas medical graduates; namely performance on the PLAB examination and IELTS English fluency test. For overseas graduates, higher ratings on the reading, listening and overall IELTS components of the test were significantly associated, on univariable analysis, with relatively higher odds of passing the CASC at first attempt. However, once the IELTS scores were conditioned on the demographic variables, performance in the written components of the MRCPsych and time of the sitting in the multivariable analysis this pattern changed somewhat. That is, in the multivariable model only the IELTS speaking, listening and overall ratings were statistically significantly related with increased odds of passing the CASC at first attempt.

Performance at part 1 of the PLAB examination was not associated with subsequent performance on the CASC, either on univariable or multivariable analyses. However, better performance at part 2 (the practical component) of the PLAB examination was associated with an increased odds of passing the CASC at first attempt. This was true for both the initial attempt and the most recent score (relative to the pass mark for that sitting) for the
Table 2  Results of a series of logistic regressions predicting passing the written papers of the MRCPsych at first sitting for UK medical graduates. Both univariable (raw) and multivariable (adjusted) results are provided. Note that numbers have been rounded in line with UKMED statistical disclosure controls.

| Paper and predictor variable | OR     | Lower 95% CI | Upper 95% CI | p    |
|------------------------------|--------|--------------|--------------|------|
| Results from univariable (unadjusted) analyses |
| BME vs non-BME |
| Paper 1: Basic and social science and adult psychiatry (n=360) | 0.64   | 0.37         | 1.11         | 0.11 |
| Paper 2: Theory, pharmacology, epidemiology and research (n=410) | 1.06   | 0.63         | 1.80         | 0.82 |
| Paper 3: Clinical topics and critical appraisal (n=420) | 0.47   | 0.28         | 0.78         | 0.004|
| Paper A: Science and theory (n=445) | 0.80   | 0.46         | 1.37         | 0.42 |
| Paper B: Critical appraisal and clinical topics (n=630) | 0.68   | 0.44         | 1.03         | 0.07 |
| Male sex |
| Paper 1: Basic and social science and adult psychiatry (n=365) | 0.90   | 0.54         | 1.51         | 0.70 |
| Paper 2: Theory, pharmacology, epidemiology and research (n=425) | 0.66   | 0.42         | 1.04         | 0.08 |
| Paper 3: Clinical topics and critical appraisal (n=440) | 0.90   | 0.55         | 1.45         | 0.66 |
| Paper A: Science and theory (n=455) | 0.53   | 0.32         | 0.87         | 0.01 |
| Paper B: Critical appraisal and clinical topics (n=645) | 0.76   | 0.52         | 1.13         | 0.17 |
| Age at time of first sitting (years) |
| Paper 1: Basic and social science and adult psychiatry (n=365) | 0.98   | 0.93         | 1.03         | 0.40 |
| Paper 2: Theory, pharmacology, epidemiology and research (n=425) | 0.96   | 0.92         | 1.00         | 0.07 |
| Paper 3: Clinical topics and critical appraisal (n=435) | 0.95   | 0.91         | 1.00         | 0.03 |
| Paper A: Science and theory (n=455) | 1.01   | 0.96         | 1.08         | 0.66 |
| Paper B: Critical appraisal and clinical topics (n=645) | 0.94   | 0.91         | 0.98         | 0.001|
| Clinical experience at time of first sitting (years) |
| Paper 1: Basic and social science and adult psychiatry (n=365) | 1.05   | 0.89         | 1.23         | 0.57 |
| Paper 2: Theory, pharmacology, epidemiology and research (n=425) | 1.01   | 0.92         | 1.11         | 0.81 |
| Paper 3: Clinical topics and critical appraisal (n=435) | 0.99   | 0.90         | 1.09         | 0.81 |
| Paper A: Science and theory (n=455) | 1.07   | 0.93         | 1.23         | 0.32 |
| Paper B: Critical appraisal and clinical topics (n=645) | 0.94   | 0.88         | 1.01         | 0.10 |
| Results from multivariable (adjusted) analyses |
| BME vs non-BME |
| Paper 1: Basic and social science and adult psychiatry (n=360) | 0.58   | 0.33         | 1.03         | 0.06 |
| Paper 2: Theory, pharmacology, epidemiology and research (n=410) | 0.96   | 0.56         | 1.65         | 0.89 |
| Paper 3: Clinical topics and critical appraisal (n=420) | 0.44   | 0.26         | 0.74         | 0.002|
| Paper A: Science and theory (n=445) | 0.82   | 0.47         | 1.42         | 0.48 |
| Paper B: Critical appraisal and clinical topics (n=630) | 0.61   | 0.40         | 0.94         | 0.03 |
| Male sex |
| Paper 1: Basic and social science and adult psychiatry (n=360) | 0.94   | 0.56         | 1.59         | 0.83 |
| Paper 2: Theory, pharmacology, epidemiology and research (n=410) | 0.65   | 0.41         | 1.03         | 0.07 |
| Paper 3: Clinical topics and critical appraisal (n=420) | 0.89   | 0.54         | 1.47         | 0.66 |
| Paper A: Science and theory (n=445) | 0.57   | 0.35         | 0.94         | 0.03 |
| Paper B: Critical appraisal and clinical topics (n=630) | 0.80   | 0.54         | 1.20         | 0.28 |
| Age at time of first sitting (years) |
| Paper 1: Basic and social science and adult psychiatry (n=360) | 0.96   | 0.91         | 1.01         | 0.15 |
| Paper 2: Theory, pharmacology, epidemiology and research (n=410) | 0.95   | 0.90         | 1.00         | 0.03 |
| Paper 3: Clinical topics and critical appraisal (n=420) | 0.94   | 0.89         | 0.99         | 0.02 |
| Paper A: Science and theory (n=445) | 0.99   | 0.93         | 1.07         | 0.88 |
| Paper B: Critical appraisal and clinical topics (n=630) | 0.94   | 0.90         | 0.98         | 0.007|
| Clinical experience at time of first sitting (years) |
| Paper 1: Basic and social science and adult psychiatry (n=360) | 1.07   | 0.87         | 1.32         | 0.50 |
| Paper 2: Theory, pharmacology, epidemiology and research (n=410) | 1.01   | 0.85         | 1.20         | 0.89 |
| Paper 3: Clinical topics and critical appraisal (n=420) | 1.06   | 0.89         | 1.27         | 0.53 |
| Paper A: Science and theory (n=445) | 1.00   | 0.82         | 1.21         | 1.00 |
| Paper B: Critical appraisal and clinical topics (n=630) | 0.98   | 0.85         | 1.12         | 0.77 |

BME, Black and Minority Ethnicity; MRCPsych, Membership of the Royal College of Psychiatrists; UKMED, UK Medical Education Database.
As a form of sensitivity analysis for the potential impact of missing data, the multivariable (adjusted) model for overseas vs UK graduates was re-run with missing written paper scores imputed. The results from imputed and non-imputed datasets were very similar.

As in previous research, we also simulated raising the standards for passing the PLAB part 2 examination. For those overseas graduates with these scores reported we compared with overseas graduates who had passed the examination with a score, relative to the pass marks, placing them in the top quartile in this sample. The difference in odds of passing the CASC, compared with UK graduates who had passed the examination with a score, relative to the pass mark, placing them in the top quartile in this sample.

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Table 5  Results of a series of logistic regressions modelling the odds of passing the CASC at first sitting in UK and non-UK medical graduates. Note that numbers used in the analyses have been rounded in line with UKMED statistical disclosure controls.\(^2\)

| Predictor                                             | N   | Raw ORs (95% CIs)          | p     | N   | Adjusted* ORs (95% CIs) | P     |
|-------------------------------------------------------|-----|---------------------------|-------|-----|-------------------------|-------|
| EEA vs UK graduates                                    | 1490| 0.17 (0.12 to 0.24)       | <0.001| 1185| 0.25 (0.15 to 0.40)     | <0.001|
| Overseas vs UK graduates                              | 1980| 0.05 (0.04 to 0.06)       | <0.001| 1485| 0.07 (0.05 to 0.11)     | <0.001|
| Overseas vs EEA graduates                              | 810 | 0.30 (0.21 to 0.43)       | <0.001| 525 | 0.36 (0.22 to 0.58)     | <0.001|
| Male sex                                              | 2140| 0.69 (0.57 to 0.83)       | <0.001| 1600| 0.65 (0.50 to 0.85)     | 0.001 |
| Age (years) at first sitting                          | 2140| 0.85 (0.83 to 0.86)       | <0.001| 1600| 1.00 (0.97 to 1.04)     | 0.94  |
| Experience (years)                                    | 2100| 0.79 (0.77 to 0.81)       | <0.001| 1600| 0.81 (0.78 to 0.85)     | <0.001|
| Average performance in written exams (score relative to pass mark) | 1600| 1.09 (1.07 to 1.11)       | <0.001| 1600| 1.06 (1.05 to 1.08)     | <0.001|
| Time of sitting (more recent vs earlier)              | 2135| 1.14 (1.11 to 1.18)       | <0.001| 1600| 1.07 (1.02 to 1.13)     | 0.007 |

*I*Adjusted for average performance (relative to pass marks) in written parts of exam, sex, age, years of experience and the time of the exam sitting (later vs earlier).

**DISCUSSION**

Our results showed marked differences in pass rates at the first sitting at the CASC between UK medical graduates, according to their self-reported ethnicity (BME vs non-BME). These differences were not explained by performance at the written papers, which evaluated clinically relevant knowledge, or other demographic factors. A number of statistically significant (\(p<0.05\)) trends, relating to educational demographic factors and CASC pass rates at first attempt, were also noted, though not all of these were independent of each other. We also noted some differences in performance on the written components of the MRCPsych, according to self-reported ethnicity of the UK medical graduates. Specifically, substantial inter-group pass rate differences existed for Paper 3 and, its replacement, Paper B. It is worth noting that both these written papers test semantic (fact-based) knowledge, but also procedural (skills). For example, skills relating to the critique of scientific research papers.

Differential performance in the MRCPsych was also observed across world region of qualification. That is, considerably lower pass rates for the CASC at first attempt were observed for non-UK medical graduates, especially those who qualified from outside of the EEA, compared with those holding UK-based medical degrees. Again, a number of educational and demographic predictors were observed, and most of these had effects that were independent of each other. For those trainee psychiatrists who obtained their medical degree outside of the EEA, aspects of English language fluency, as indicated by IELTS scores, and performance in part 2 (though not part 1) of the PLAB examination were also independent predictors of success at the CASC. Again, in relation to the written components of the MRCPsych, a similar pattern to that observed for ethnicity was seen, with the most marked, differences observed for the papers with procedural knowledge components (Papers ‘3’ and ‘B’).

Our results almost exactly mirror the findings reported by Esmail and Roberts for the MRCGP, in terms of the findings in relation to both ethnicity and place of qualification. This is unsurprising given that both general practice and psychiatry are specialties that place a strong emphasis on inter-personal ability and communication, as well as other procedural skills. This may especially disadvantage those from overseas, or even those who study undergraduate medicine in the UK, but who speak English as a second language. Moreover, both general practice and psychiatry are relatively unpopular medical career choices, with a historical reliance on overseas graduates. Furthermore, in terms of ARCP outcomes, these were the two specialties noted to have the most marked performance differences between UK and overseas graduates. Additionally, the disparities substantially reduced when ARCP outcomes associated with postgraduate examination failure were excluded.\(^1\) This suggested that for many overseas graduates the relevant Royal College membership exams were acting as barriers to career progression. It may also be that this relative unpopularity of psychiatry means that trainees entering such specialties are starting from a lower baseline of knowledge and skills. Indeed, UK medical graduates who choose psychiatry, on average, have lower levels of undergraduate academic achievement, compared with their peers.\(^2\)

Also, for general practice and medicine, McManus has previously suggested that the PLAB test may be too easy to ensure equivalence between UK and non-UK medical graduates in terms of
postgraduate exam performance. In the present study, we noted the relatively low IELTS and PLAB test scores achieved by the MRCPsych candidates, in relation to a more general cohort of overseas graduates. It was also interesting to note that PLAB part 2 (the practical component of the PLAB) but not PLAB part 1 scores at passing were predictive of CASC performance. These findings echo those previously shown for the MRCP and MRCPsych, where PLAB part 2 scores, rather than those for part 1, predicted performance in the clinical components.

There are also likely to be more subtle and complex reasons underlying the differences observed in the present study. For overseas graduates, there may be issues relating to culture—both of the UK in general and within the NHS in particular. Our findings also highlight a degree of disjoint between semantic (fact-based) and procedural knowledge in medicine. It is possible that some doctors in training place more importance on the acquisition of factual knowledge. Nonetheless, it appears to be procedural skills that are more crucial in determining relative performance on clinical practical exams, especially where candidates have already had to pass knowledge tests. Indeed, in one study performance at the MRCPsych clinical skills assessment in overseas doctors was more strongly predicted by scores on a situational judgement test, evaluating interpersonal skills, than by achievement on a knowledge-based test. However, we do not agree with Esmail and Roberts’ earlier assertion that ‘Previous training experience and cultural factors… could help explain these differences between UK candidates and international medical graduates. However, these cultural factors cannot explain differences between white candidates and black and minority ethnic candidates who have trained in the UK, and who would have had similar training experiences and language proficiency’. Indeed, we would highlight the observation reported from a subsequent linguistic analysis of MRCPsych clinical skills assessment candidates that there were distinctive communication styles in UK graduates identifying as BME that were also observed in non-UK doctors. Relative average lower academic performance in medical students and doctors from minority ethnic groups is well evidenced and is probably not adequately explained by personality or obvious social factors. However, it should be stressed that, even if subtle cultural influences exist, these should be understood, and not be used to perpetuate any further marginalisation of certain groups of doctors.

If bias, conscious or unconscious, is a driver behind these disparities in pass rates it could operate at a number of points in training and assessment. One previous study investigated examiner behaviour in the clinical part of the Membership of the Royal Colleges of Physicians of the United Kingdom (MRCP (UK)). The authors’ reported that examiners reporting to be from BME groups were, on average, more stringent, than those identifying as white, though did not identify any bias as such towards BME candidates. Thus, it is quite possible that there is similarly no bias evident in the CASC examination scoring. However, the CASC will inevitably place a greater degree of emphasis on communication skills, compared with the PACES exam. Therefore, it is important that further detailed analysis, of the sort conducted by McManus et al. of the MRCP(UK) examination, should be performed. This will help rule this potential source of bias out. It is also possible that there may be bias at work during specialty recruitment and training. Esmail and Roberts also noted that the proportion of ethnic minority trainees varied across deaneries and that selection and training processes may work against the interests of weaker recruits, encouraging a cycle of ‘educational deprivation’. In the present study, the nature of the data excluded an exploration of these factors. This may be a focus of future research into psychiatric training. Moreover, it is likely that qualitative, rather than quantitative findings will shed further light on the underlying reasons for differential attainment in the specialty. In this regard, previous explorations of the experiences of overseas doctors in UK training highlighted the multiple challenges to career progression. These included feelings that seniors lacked trust in them, cultural differences, separation from the usual sources of social support, as well as the perceived difficulty of professional examinations. A report commissioned by the GMC, as part of a review into the fairness of career progression, included interviews with 262 UK doctors in training, around half identifying as being from BME groups. The trainees were drawn from a number of specialties, including psychiatry. Although it is not clear how representative the sample was, some of the quotes raise the possibilities that trainees from BME backgrounds may be subject to regular ‘microaggressions’ in the workplace. These can be defined as ‘brief, but frequent, verbal, behavioural, or environmental indignities that communicate prejudices or insults toward any group’. They may be conscious or unconscious and subtle, though relentless in their persistence. For example, one UK BME psychiatric trainee was quoted in the report as follows: ‘I’m expecting to get a lower mark because I’m—I know it’s a stupid way of thinking but actually it got to the point where I was thinking “What is it? Am I…?” I wasn’t sure if it was my knowledge anymore, I wasn’t sure if it was my confidence, I wasn’t sure if it was my skin colour. So you start—think it creates almost like a nasty way of thinking and how you perceive yourself to be. And if that someone’s expectation of you is low, subconsciously your performance will be low’. It may be that trainees from certain socio-cultural backgrounds are, on average, less able or willing to seek help with exam preparation. It is also possible that trainees from certain backgrounds may receive fewer, or less intense, helping behaviours from their trainers, which may additionally depend on, and interact with, their trainer characteristics. This trainer/trainee relationship could be assumed to be especially critical in the months leading up to a CASC attempt. Moreover, the relative lack of practical support is likely to be evident by underperformance in tests of procedural, rather than semantic knowledge, the latter being more easily obtained merely by private study. The report also highlighted that those involved with medical Royal College exams, especially those linked to psychiatry, medicine and general practice, felt under pressure to address these differential attainment issues since the BAPIO Court case.

**Strengths and limitations**

Although this was a large, national dataset a number of limitations should be borne in mind. First, we did not have data relating to ethnicity for non-UK graduates. However, our previous analyses indicate that, at least for overseas graduates, the vast majority identify as BME. Therefore, in this case, recorded ethnicity tends to co-vary almost perfectly with graduation region, and does not add any additional information. Moreover, we noted that in a previous study of the clinical skills assessment for general practitioners in training very small numbers of overseas graduates identified as of ‘white’ ethnicity. Unlike the study by Esmail and Roberts, we were not in a position to examine 2nd and 3rd sittings at the clinical examination, though the authors pointed out that few conclusions could be drawn from any observations in this regard, as subsequent outcomes were dependent on the preceding ones. Our data ruled out the possibility that BME or overseas candidates were choosing to take the CASC earlier than non-BME UK graduates in their training, and thus were more likely to fail at first attempt. In this regard, overseas
graduates were substantially older and more experienced at the time of the first attempt. Whilst BME UK graduates were sitting the examination with roughly the same post-registration experience as non-BME UK graduates, they were, on average, slightly younger. This could have reflected a modestly decreased tendency for BME doctors to take time out of training between the foundation years and specialty recruitment.

With the exception of self-reported ethnicity for non-UK graduates, generally, there were relatively few missing data. However, where information was less complete, that is, for written paper scores and PLAB examination performance for overseas graduates, our sensitivity analyses using multiply imputed datasets suggested that such data were ‘missing at random’. That is, their absent values were, to some extent, related to those that were observed. As such, the missing data are very unlikely to have affected any of our key findings.

Although detailed information on socio-economic status was unavailable, our findings in relation to CASC performance are very unlikely to be explained by this factor. This is because academic performance is associated with sociodemographic characteristics, such as the type of school previously attended.16,37 Thus, once our models were adjusted for scores on the written papers the effects of such factors would almost certainly have been minimal. The numbers of doctors graduating from the EEA were relatively few in the sample. Therefore, more detailed analyses relating to this group in comparison with the other two graduate groups were not performed.

We also acknowledge that the number of analyses performed may have increased the risk of a type 1 error—that is apparently statistically significant finding due to chance alone. However, the p values associated with our key findings tended to be very small (eg, p<0.001), making them highly unlikely to be due to chance alone. Moreover, the results were consistent with findings from other groups of doctors in training. Nevertheless, it cannot be ruled out that some of the secondary findings, with p values nearer to 0.05, could still be the work of chance.

Implications for policy and directions for future research
Organisations, such as the medical Royal Colleges, already have training in relation to unconscious bias in place. However, the evidence for the effectiveness of such training, especially if it consists of courses of 1 day (or less) duration, is weak.38 Moreover, it is likely that the reasons underlying the findings in this study are complex, and are therefore unlikely to be mediated via a simple single strategy, even at the institutional level. Our simulations, although crude ones, relating to the PLAB and IELTS, suggest that substantial differential attainment in the CASC are likely to continue, even if the requirements for performance in these assessments are made substantially more stringent.

This finding is in keeping with previous studies in relation to membership exams and ARCP that indicated that only PLAB candidates above the upper duodecile (12th) for performance in the examination exhibited postgraduate academic achievement roughly equivalent to UK medical graduates. Similarly, this situation is likely to remain unchanged even if a medical licensing assessment is introduced as a requirement for all UK registered practitioners, as planned.39 Certainly, substantial differential attainment between home and overseas graduates in countries that have such licensing arrangements in place remain. Moreover, there is little evidence that quality of care patient safety is improved by the introduction of such medical licensing examinations.40,41

What is also unclear is whether differences in academic performance between graduate groups of doctors translate into differential clinical care and patient outcomes. In this regard, there is scant evidence, though previous research reported that US citizens who obtained their medical degrees from outside of North America may have poorer patient outcomes when compared with either home graduates or non-US citizens who graduated abroad.41 Similar UK-based research has not been performed. Nevertheless, one study evaluating ARCP outcomes in ‘UK overseas graduates’ (UK citizens who graduated from outside of Britain) reported that such doctors were less likely to receive favourable outcomes at progression assessment than other graduate groups. It was also noted that such UK overseas graduates were more likely than overseas nationals graduating abroad to be successful at obtaining a place on a specialty training scheme.42 Currently, specialty pass rates at postgraduate exams are publically available via the GMC website.43 However, breakdowns of pass rates by place of medical qualification, region and ethnicity for each Royal College are not currently possible for this site. In the interests of transparency, this should be addressed.

Consequently, our findings suggest that further, more detailed, research is performed with some urgency in order to help identify and understand any sources of bias present. In particular, analysis, such as that previously performed by McManus et al for the practical component of the Royal College of Physicians exam, could be repeated for data relating to the CASC. Such analyses could help understand CASC rater behaviour, and identify whether there are any interactions in relation to candidates depending on their ethnicity or medical graduation group. If, as in the case of the MRCP, obvious examiner bias was ruled out, then other putative sources of bias or discrimination during training could be investigated. This could focus particularly on selection and recruitment into core training for psychiatry, as well as more qualitative research focusing on trainee-interactions with a focus particularly on preparation and support for the CASC. Locally, in-house training programmes exist, which include simulation-based training with feedback, which could encourage confidence in communication and other procedural skills in both UK medical graduates and overseas doctors.44 These can often take the form of formative OSCEs.45 There are some indications that, where such programmes have been implemented the differences in CASC pass rates between UK and non-UK graduates may diminish.46 It was also noted that, compared with the more semantic knowledge-focused multiple-choice tests, the two written papers (‘A’ and ‘B’) which involved evaluation of critical appraisal and statistical skills showed marked performance differences between UK and non-UK medical graduates, as well as some inter-ethnic differences in UK doctors. Thus, some graduates groups working in psychiatry may benefit from specific additional support in these areas.

CONCLUSIONS
‘Brexit’ and a continued shortage of UK medical graduates choosing careers in psychiatry, are likely to contribute to a continued reliance on overseas doctors for NHS mental health services for the foreseeable future. Thus, the marked differences in CASC performance must be urgently investigated and remediated from a medical workforce perspective. Moreover, the backdrop of the high fatality rate in BME health workers during the COVID-19 pandemic and the ‘Black Lives Matter’ movement is likely to add impetus to efforts to address any potential unfair treatment of NHS employees. Moreover, particularly in the case of UK graduates who identify as from BME groups, our findings need to be acted on from an equality perspective.
Main messages

► Substantial differences in performance exist for the clinical examination of the MRCPsych (the CASC) between UK medical graduates who identify as Black and Minority Ethnic (BME) and those who identify as non-BME.
► Similar differences, though of larger magnitude, also exist for CASC performance between UK medical graduates and those who obtained their primary medical qualification outside of the UK.
► These differences persist even after controlling for the potential influence of educational and background variables, including performance on the written components of the MRCPsych examination.

Current research questions

► Are there any sources of potential bias in the MRCPsych clinical examination, especially in relation to possible interactions between rater characteristics?
► Are there any differences in the postgraduate training experiences between differing groups of psychiatrists in training that could help explain the differential performance in the MRCPsych, and in particular, the CASC?
► Do any inter-group differences in academic performance translate into any meaningful differential variations in actual clinical behaviour and/or patient outcomes?

What is already known on the subject

► Differential attainment, between UK graduates who self-identify as black and minority ethnic (BME) and those who did not, has previously been reported for the practical component of the Membership of the Royal College of General Practitioners examination.
► The differences were not accounted for by differences in clinical knowledge and this was considered by some to be evidence of racial discrimination.

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Competing interests None declared.

Patient consent for publication As the study used routinely collected, de-identified data, ethical approval was not required. This was confirmed in writing by the Chair of the University of York Health Sciences Ethics Committee. Moreover, individual informed consent for the use of the data was not required for this study. This is because all the data used were held within the UKMED. The use of personal data in UKMED is not reliant on individual consent from data subjects, as it is not a necessary condition for processing under the General Data Protection Regulation (GDPR), which allows personal data to be used without consent where it is necessary for statutory functions.

Ethics approval The Medical Act 1983 gives the GMC a legal responsibility to promote high standards of medical education and co-ordinate all stages of medical education. This enables the creation of the database and the disclosure of data by other providers in compliance with the GDPR. For more information see www.ukmed.ac.uk/faq.

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Data availability statement This study involved the analyses of secondary data. Access to the data may be obtained from the UK Medical Education Database (URL: www.ukmed.ac.uk) following approval of an application. Code for data management and analysis is available from the lead author on request.

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