Investigating the influence of African American and African Caribbean race on primary care doctors' decision making about depression

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ARTICLE INFO

ABSTRACT

This paper explores differences in how primary care doctors process the clinical presentation of depression by African American and African-Caribbean patients compared with white patients in the US and the UK. The aim is to gain a better understanding of possible pathways by which racial disparities arise in depression care. One hundred and eight doctors described their thought processes after viewing video recorded simulated patients presenting with identical symptoms strongly suggestive of depression. These descriptions were analysed using the CliniClass system, which captures information about micro-components of clinical decision making and permits a systematic, structured and detailed analysis of how doctors arrive at diagnostic, intervention and management decisions. Video recordings of actors portraying black (both African American and African-Caribbean) and white (both White American and White British) male and female patients (aged 55 years and 75 years) were presented to doctors randomly selected from the Massachusetts Medical Society list and from Surrey/South West London and West Midlands National Health Service lists, stratified by country (US v.UK), gender, and years of clinical experience (less v. very experienced). Findings demonstrated little evidence of bias affecting doctors' decision making processes, with the exception of less attention being paid to the potential outcomes associated with different treatment options for African American compared with White American patients in the US. Instead, findings suggest greater clinical uncertainty in diagnosing depression amongst black compared with white patients, particularly in the UK. This was evident in more potential diagnoses. There was also a tendency for doctors in both countries to focus more on black patients' physical rather than psychological symptoms and to identify endocrine problems, most often diabetes, as a presenting complaint for them. This suggests that doctors in both countries have a less well developed mental model of depression for black compared with white patients.

1. Introduction

Previous research has demonstrated variation in the ability of different ethnic groups to access appropriate care for depression (Das et al., 2006), and subsequently in the quality of care they experience (Simpson et al., 2007; Gonzalez et al., 2010). The extent to which observed disparities are the result of conscious or unconscious racial bias amongst clinicians, or lack of understanding about how people from different segments of the population present with depression, is open to question. This paper seeks to contribute to this area by exploring doctors' responses to standardised patient presentations of depression (i.e. using identical, scripted verbal and body language) portrayed by actors of different race. It compares the responses of doctors in two developed countries, the US and the UK, to people of African descent (African Americans and African-Caribbeans) versus white people (White Americans and White British).

These countries have been chosen because both have a history of racial discrimination against people of African descent. Discrimination has been overt in the US, while in the UK it has manifested itself in cumulative social exclusion processes, involving cultural, institutional and socio-economic exclusion (McLean et al., 2003). However against this similar 'backdrop', it appears that racial disparities in health care may play out

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differently in the two countries. In the US, African Americans delay help seeking and have less access to mental health services (Dinwiddie et al., 2013); whereas in the UK Smaje and LeGrand (1997) and Cooper et al. (1999) found higher rates of GP use by Asians and African-Caribbeans compared to whites, but lower rates of referral among these groups to outpatient services. Our purpose is to clarify what happens within clinical encounters, and the role played by racial bias versus clinical uncertainty within the diagnostic process for depression itself. Findings will permit identification of mechanisms driving differential diagnoses and disparities that are common to black and white people in both countries, and also between-country variation due to cultural and health care system differences. New insights gained will help target efforts to reduce disparities in depression care in both countries.

2. Background

There is evidence to suggest that African-Caribbean and other ethnic minority communities in the UK are over represented in secondary mental health in-patient and forensic services and have more negative care experiences compared with their white counterparts (Fernando, 2010). Social exclusion processes are clearly influential in this. There is an independent relationship between lower socio-economic status and poorer mental health (Gary, 1988), and African-Caribbeans in the UK are disproportionately located in lower socio-economic status groups (Modood, 1997). In terms of cultural social exclusion, African Caribbeans' distinctive speech, language and gestures can lead to misunderstanding and fear amongst predominantly white clinicians (General Medical Council, 2014), so that they attract labels such as 'big, black, bad, mad and dangerous' (McLean et al., 2003; Keating, 2007). Consequently they experience more control and restraint procedures within secondary mental health services, which act as agents of social control (McLean et al., 2003).

This situation is mirrored in the US amongst African Americans (National Institute of Mental Health, 2001), despite African Americans having less access to mental health care services in the first place (Dinwiddie et al., 2013). Studies have shown that African Americans suffering from depression receive poorer quality of care compared with White Americans (Young et al., 2001; Stockdale et al., 2008; Alegria et al., 2008), and a systematic review by Simpson et al. (2007) concluded that African Americans and Hispanics are less likely to receive appropriate treatment than White Americans. Only two out of the nine US studies reviewed (Rollman et al., 2002; Sleath et al., 2001) showed no differences in treatment between the groups. In a related vein, Gonzalez et al. (2010) found that clinicians were less likely to use guideline-concordant therapies for African American or Mexican American patients compared with White Americans or other ethnic groups. In the current study, the focus is on the early phase of a patient's care journey when the diagnostic process unfolds as they first encounter the health care system. Research shows that African-Caribbeans are equally or more likely to suffer from depression, often mixed with anxiety, than White British people (Nazroo, 1997; Shaw et al., 1999; Weich and McManus, 2002), although findings about the prevalence of depression amongst African Americans compared with White Americans are inconclusive (Riolo et al., 2005; Williams et al., 2007). What is clear however is that diagnostic rates vary widely. Cultural differences in the conceptualisation of depression and in people's help-seeking behaviours aside, previous research suggests that in the UK African-Caribbeans are less likely than White patients to receive a diagnosis of depression from their general practitioner (Lloyd, 1993; Odell et al., 1997), and this is also the case in the US for African-Americans and white patients (Borowsky

et al., 2000; Miranda and Cooper, 2004; Simpson et al., 2007; Trinh et al., 2011; Lukachko and Olfson, 2012).

There is evidence to suggest that disparity mechanisms associated with the diagnostic process itself are at the heart of the matter. The systematic review carried out by Das et al. (2006) identified a number of factors affecting doctors' ability to recognise and treat major depression amongst African Americans, including clinical presentation complicated by: somatisation, stigma regarding a diagnosis of depression, competing clinical demands of co-morbid general medical problems, and problems with the doctor–patient relationship. A recent US study of primary care consultations with patients who had screened positive for depressive symptoms, found that doctors were less likely to discuss depression, respond to emotional disclosures or recognise significant emotional distress of their African American relative to their White patients (Ghods et al., 2008). Cooper et al. (2010) have argued that racial differences in communication contribute to racial disparities in depression detection and treatment. Previous research therefore highlights the importance of identifying where and how communication and clinical decision making can go wrong in primary care.

One cause of ethnic and racial disparities within different healthcare systems may be doctor bias (Cooper et al., 2012; Schulman et al., 1999; Van Ryn and Burke, 2000; Weisse et al., 2001; Kales et al., 2005; McKinlay et al., 2006). However, findings from these studies suggest it is plausible to consider that doctors lack a clear mental model of depression for black (defined for the purposes of this paper as African Americans and African-Caribbeans collectively) compared with white patients (defined here as White Americans and White British collectively), which can lead to differential treatment rather than discriminatory behaviour *per se*. For instance, Baker (2001) highlighted doctors' tendency to misdiagnose affective disorders amongst African Americans. Similarly, Ghods et al. (2008) suggested that clinicians are more likely to attribute distress in African Americans to critical life events rather than depression, than they are for White American patients. Health care system differences between the US and the UK have also been shown to impact on primary care doctors' diagnostic and management behaviour. US doctors in our own sample had longer patient consultations compared with UK doctors (Konrad et al., 2010), and US doctors expressed greater certainty in their diagnosis of depression and were significantly more likely to prescribe antidepressants at a first visit compared with their UK colleagues (Link et al., 2011).

In order to explain the racial differences identified above and any disparity mechanisms, it is important to understand how doctors make diagnostic and treatment decisions. The aim of this paper is to examine the micro-processes of clinical decision making using a coding system we have previously developed and applied called CliniClass (Buckingham and Adams, 2000a, 2000b; Adams et al., 2008). It enables the disentanglement of disparity effects due to doctor bias and health care system differences, from effects due to doctors' uncertainty about depression presentation. Understanding the root causes of racial disparities emanating from doctor-patient interaction in depression care will show where to target interventions designed to minimise them, thereby helping reduce inequalities in care in the US and the UK.

Our expectations were that racial disparity will be evident in less elaborate and more cursory clinical decision making (CDM) processes for black compared with white patients. These will be characterised by: considering fewer patient cues; generating fewer inferences based on activating fewer types of diagnostic knowledge structures; considering fewer potential outcomes associated with inferences; instigating fewer interventions; and citing more health care system constraints associated with intervention decisions. Where different mental models of disease are in operation for black

and white patients, we expect to see differences in the types of CDM components doctors talk about in their patient narratives.

3. Study methods

This study is based on a qualitative analysis of primary care doctors' decision making collected within the context of a large US/UK cross-national study focussing on older patients presenting with symptoms strongly suggestive of coronary heart disease or depression. The study used a factorial experimental design which permitted independent assessment of doctor, patient and health service characteristics (see McKinlay et al., 2006 for a full description of the study design and methods). Analyses of the quantitative data from the original study descriptive of the clinical process have been presented elsewhere (McKinlay et al., 2006). The current paper presents additional analysis of doctors' narrative accounts of their decision making process about the 'depressed' patients collected at the same time as the quantitative data (2001–2002). Ethical approval for the original study was given by the internal review boards of the New England Research Institutes and the University of Surrey. The current analysis is based on an enhanced version of the CliniClass method (described below) that had been previously applied to a companion set of data focussing on clinical decision making about heart disease (Adams et al., 2006, 2008).

The doctors' narrated accounts were generated in response to viewing video-taped simulated patients, portrayed by professional actors, presenting symptoms strongly suggestive of depression. The medical history included a month's history of constant, aching pain which affected the patients' limbs, head and stomach, and which restricted their activity and made them "not want to do much of anything." Patients had previously been investigated for a heart problem which turned out to be stress, they were not interested in food and slept too much, but still felt tired all the time. "I can't seem to get myself out of bed in the morning" they complained, and that "the last couple of weeks it's [too much sleep] been really getting me down, and combined with this pain, I'm just not having a good time with all this." They go on to say "I'm just trying to get through, trying to concentrate on getting through the day without having a heart attack or getting hit by a bus", and the vignettes conclude with the patient words: "all I know is it hurts, and I don't want it to hurt anymore." We expected doctors to be concerned about suicidality as well as depression amongst the simulated patients.

Doctors were randomly assigned to view either a male or female patient, who was either black (i.e. portrayed by the same actors as African American or African-Caribbean for US and UK doctors respectively) or white (i.e. portrayed respectively as either White American or White British by the same actors), aged 55 years or 75 years, and represented as from either a low or higher socioeconomic status background, in regard to dress and reference to occupation. While the characteristics of the eight actors and their social class portrayals varied, the presentation of depression symptoms was identical in each case. Actors followed identical scripts to standardise both the spoken words and the body language used in the depression portrayals.

The depression videos were shown to 256 primary care doctors, stratified by country (US v.UK), gender, and years of clinical experience (less than 10 years versus 20+ years). Doctors' race was not included as a stratifying variable; only 22 doctors (20%, 15 in the UK and 7 in the US) were not from white ethnic groups. US doctors were randomly sampled from the Massachusetts Medical Society list and UK doctors from Surrey/South West London and West Midlands National Health Service lists of general practitioners. The sample of 256 doctors represents response rates of 65% and 60% of all eligible doctors initially approached in the US and UK respectively. Half of the 256 doctors ($n = 128$) were asked to provide an unprompted account of their decision making processes about the patient in the depression video shown to them (The other half of the sample was given a different task). Due to missing and incomplete data (due to clinical demands on doctors' time and some failed recordings), 108 (out of 128) accounts were analysed. These were provided by 52 US and 56 UK doctors, elicited in response to 53 black and 55 white patient presentations.

The doctors' instructions for the narrative account were: "I would like you to think back to the beginning of the consultation and to describe your thoughts as they occurred during it. I am particularly interested in when a possible diagnosis first entered your mind and how the diagnoses developed on the way to your final conclusions. Starting at the beginning then, can you replay the tape in your mind and tell me what your thoughts were about the patient?" This approach allowed doctors to articulate thoughts in the order in which they were triggered, thus providing information not usually available about what, in their minds, was most significant about the video presentations, and revealing how their train of thoughts developed as they reached diagnostic conclusions. This free recall opportunity makes these data ideal for examining what information doctors notice about different patients, how they process it to arrive at a set of differential diagnoses, and how they then assess risks associated with different diagnostic testing and treatment strategies.

3.1. Analysis of narrative accounts of clinical decision making

Doctors' accounts were audio-recorded and transcribed verbatim. Analysis was undertaken by one researcher (LV) in the UK, using the CliniClass software developed by co-author CB. CliniClass is the only coding scheme we are aware of which provides the opportunity to 'anatomise' the micro-processes of clinical decision making with sufficient granularity to reveal cognitive mechanisms associated with clinical decision making, incorporating: (i) cues considered relevant to the decision making task, including those noted as being missing from patient accounts and those which doctors would expect to be present, but which are absent; (ii) knowledge structures used (e.g. past clinical experience, research evidence, 'text book' descriptions); (iii) inferences generated as a result of the first two processes; (iv) consideration of the potential outcomes associated with treating or not treating the inferred conditions; (v) clinical interventions to be made; and (iv) health care system constraints affecting intervention decisions. A fuller description and the origins of the model are explained in Buckingham and Adams (2000a, 2000b). Inter-rater reliability of coding (undertaken by LV and AA) was good and averaged 83% agreement.

CliniClass enhancements used in the current study include finer-grained sub-categories for CDM components related to decision making cues and inferences, as follows:

1. Cues were sorted into 28 discrete categories relating to: physical symptoms (e.g. pain, sleep, weight, appetite, gastric problems); mental and emotional symptoms; patients' past history; lifestyle; social context; demographics; orientation to their health problem and non-verbal presentation cues;
2. Inferences were distinguished into 35 categories relating to: diseases associated with different body organs, structures and systems (e.g. cardiac problems, endocrine problems, gastrointestinal problems, bone problems), types of disease or disorder (e.g. cancers, emotional problems), functional impairment (e.g. sleep disorder, cognition problem), symptom states (e.g. fatigue, pain, anaemia, being suicidal or at risk of self-harm), as well as inferences about patients' medications, their past medical history and about patients themselves (e.g. about their

orientation, the type of person they are and problems associated with their social context).

The data were analysed to explore the role of race and country on overall decision making and the influence of lower level CDM components on doctors' reasoning processes. Each of the CliniClass components was examined with respect to race and country effects by comparing mean scores using either *T*-Tests or Mann—Whitney U, as dictated following assessment of the distribution of the CliniClass data. Firstly however, descriptive statistics for the whole data set were explored. The reported frequencies represent a count of unique types of each component, e.g. the number of unique patient cues noted by the doctor, excluding duplicate mentions of the same cue.

4. Results

Table 1 shows wide variation in the amount of patient information doctors processed as part of their diagnostic decision making, evident in the range of unique cues mentioned (from 1 to 24), and in the range of unique clinical inferences they generated (i.e. ideas about what the patient's problem is) (from 1 to 18). Table 1 also suggests significant variation in *how* doctors process information in order to arrive at the inferences they made. This is evident in the range of knowledge structures activated (0–13): the mechanisms which guided doctors in making sense of patient information (e.g. drawing on clinical experience of previous similar patients, textbook descriptions of diseases, research evidence and population base rates). There is variation in whether doctors wished to know more information about patients than was present in the video narrative (missing cues, 0–7), and in the use of cues as evidence against hypotheses (negated cues, 0–6). Table 1 also demonstrates considerable variation in what doctors decided to do next. There were variations in whether or not doctors articulated the potential outcomes of treatments for different diagnoses or not treating them at all, ranging from none being mentioned to six possible outcomes. With respect to the eventual chosen intervention plan, they wished to instigate between 0 and 9 different interventions immediately; and they articulated between 0 and 4 health care system factors affecting their intervention decisions (e.g. cost constraints, long waiting lists, lack of local services).

Table 1 also shows between country differences: US doctors processed more patient information compared with their UK counterparts, as reflected in the higher number of patient cues mentioned in their clinical narratives. US doctors more often noted that important information about the patients was missing from the video presentation (missing cues), and were more likely to mention cues that were notable in their absence and taken as an indication that the patient did not have particular conditions (negated cues).

The amount of variation in Table 1 findings suggests that this may be a promising data set within which to identify disparity mechanisms or evidence of differences in doctors' mental models of depression for black compared with white patients in the US and the UK. Accordingly, the numbers of unique CDM components mentioned by doctors in relation to black compared with white patients were analysed within both countries.

4.1. Examining race and country effects in the overall decision making process

Table 2 shows some evidence of differences in the decision processes for black compared with white patients. Doctors generated more clinical inferences for black compared with white patients (mean scores of 8.81 versus 7.11, $p = 0.02$), but when controlling for country, significant differences were only evident amongst UK doctors (mean scores of 8.68 versus 6.46, $p = 0.02$). Nearly four times as many outcomes were considered for White American compared with African American patients (mean scores of 1.39 versus 0.38, $p = 0.01$) in the US, but there were no significant differences found in the number of interventions doctors wished to carry out immediately or in the number of health care system constraints cited for black compared with white patients between countries.

Although Table 2 showed fewer potential outcomes considered for African American compared with White American patients by the US doctors, further analysis revealed no differences in the *types* of potential outcomes. This was also true for results relating to the different types of knowledge structures doctors activated when making decisions about what patients' problems were. Similarly, there were no differences in the types of interventions doctors spoke about for black compared with white patients, or in the types of any health care system constraints affecting their intervention decisions.

4.1.1. Types of patient cues considered

The most frequently cited types of patient cues (each present in over 40 doctors' narratives) for both black and white patients were: pain, mental health problems, patients' orientation to their health problem (i.e. beliefs and attitudes) and demographic cues (gender, age and race — although race was only mentioned by 13 doctors); followed by concern about sleep, tiredness, headache, the way in which patients presented their symptoms (tone of voice, language used etc.) and the prior stress episode (see Table 3). Only two of these, pain and the prior stress episode were noted as being used as a basis for a clinical decision that showed a relationship with patient race. Analysis based on using the chi square measure of

Table 1
Frequency statistics of unique clinical decision making (CDM) components mentioned in 108 individual doctors' accounts by country.

CDM component	Range		Mean and standard deviation (SD)						Differences between US and UK
			Overall		US		UK		
	Min	Max	Mean	SD	Mean	SD	Mean	SD	
Patient cues	1	24	12.19	4.49	13.10	4.88	11.36	3.96	$P = 0.04$[a]
Missing cues	0	7	0.70	1.27	1.00	1.16	0.43	0.78	$P = 0.04$[a]
Negated cues	0	6	0.78	1.36	1.13	1.61	0.45	0.99	$P = 0.01$[a]
Clinicians' inferences	1	18	7.92	3.70	8.31	3.97	7.55	3.43	$P = 0.30$
Knowledge structures activated	0	13	2.71	2.54	3.17	2.93	2.29	2.05	$P = 0.07$
Potential outcomes considered	0	6	0.82	1.25	0.92	1.38	0.73	1.12	$P = 0.43$
Interventions to be carried out now	0	9	0.69	1.22	0.88	1.5	0.50	0.85	$P = 0.10$
Health care system constraints	0	4	0.62	1.00	0.75	1.14	0.50	0.85	$P = 0.20$

[a] Mann Whitney U significant at the $P < 0.05$ level.

Table 2
Frequency of unique clinical decision making (CDM) components mentioned in doctors' accounts by patient race and country.

CDM components	Mean (M) and standard deviation (SD)												Significance (P=)		
	White patients						Black patients								
	All (n = 56)		US (n = 28)		UK (n = 28)		All (n = 52)		US (n = 24)		UK (n = 28)				
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	All	US	UK
Patient cues	12.04	4.74	13.64	5.06	10.43	3.86	12.37	4.24	12.46	4.68	12.29	3.91	0.70	0.39	0.08
Missing cues	0.77	1.19	0.96	1.37	0.57	0.96	0.63	1.36	1.04	1.85	0.29	0.53	0.28	0.86	0.17
Negated cues	0.62	1.15	0.96	1.45	0.29	0.60	0.94	1.55	1.33	1.79	0.61	1.26	0.44	0.42	0.23
Clinicians' inferences	7.11	3.33	7.75	3.45	6.46	3.13	8.81	3.91	8.96	4.49	8.68	3.13	0.02[a]	0.28	0.02[a]
Knowledge structures activated	2.36	2.28	2.93	2.62	1.79	1.75	3.10	2.76	3.46	3.28	2.79	2.23	0.13	0.52	0.07
Potential outcomes considered	1.00	1.35	1.39	1.60	0.61	0.92	0.63	1.21	0.38	0.82	0.86	1.30	0.13	0.01[a]	0.41
Interventions to be carried out now	0.75	1.39	1.04	1.80	0.46	0.74	0.62	1.01	0.71	1.08	0.54	0.96	0.57	0.44	0.77
Healthcare system constraints	0.64	0.94	0.75	1.08	0.54	0.79	0.60	1.07	0.75	1.23	0.46	0.92	0.81	1.00	0.77

[a] Mann Whitney U significant at the $P < 0.05$ level.

association showed that US doctors took more account of pain in White American compared with African American patients (28 versus 20 patients, $p = 0.04$), and that UK doctors were significantly more likely to comment on a prior stress episode (mentioned in 15 versus 5 narratives about African-Caribbean compared with White British patients respectively, $p = 0.01$, see Table 3).

4.1.2. Types of clinical inferences considered

Differences in the numbers of inferences made about black compared with white patients were explored further by also examining the types of inferences made. Table 4 shows that the most frequently cited potential diagnoses (each present in over 40 doctors' narratives) were: emotional problems, depression, rheumatic problems, endocrine problems and cancer. Contrary to expectations, inferences regarding suicidality were made by only three doctors. Analysis showed only two significant differences in the types of inferences doctors made about black compared with white patients, and this is in relation to endocrine problems and emotional problems. Across all doctors, endocrine problems were more frequently inferred for black patients than white patients (27 versus 16 patients, $p = 0.02$). The most frequently mentioned endocrine problem noted was diabetes. US doctors more frequently inferred emotional problems for White American compared with African American patients (28 versus 22, $p = 0.04$, see Table 4).

5. Discussion and conclusions

The current study contributes a detailed analysis of British and American primary care doctors' cognitive and decision making processes when evaluating racially diverse simulated patients presenting with symptoms strongly suggestive of depression. The study findings indicate increased clinical uncertainty about diagnosing emotional problems and depression in black compared with white patients. This was evident in the consideration of a larger number of condition inferences for African-Caribbean versus White British patients; and greater focus on physical symptoms and the possibility of endocrine disease as a presenting complaint, particularly diabetes, in doctors' narratives about black compared with white patients in both countries. This suggests that doctors in both countries may have a less well developed mental model of depression presentation for black compared with white patients. These findings are consistent with findings about coronary heart disease (CHD) derived from the same original study. Lutfey et al. (2009) concluded that both US and UK doctors' mental models of CHD appear to be clearer-cut for white compared with black patients.

The higher levels of clinical uncertainty evident for UK rather than US doctors may reflect less familiarity with African-Caribbean

patients in the UK. While there are high concentrations of African-Caribbeans in parts of South London and the West Midlands, these populations are less common in the other UK study sites. Nevertheless, despite greater familiarity with African American patients in the US, the American doctors still appear less attuned to detecting emotional problems amongst them compared with White American patients. This resonates with the findings of Ghods et al. (2008) in noting that doctors were less likely to attribute emotional distress to depression amongst African-American than White American patients. A possible explanation for these findings is that in general, African Americans and African-Caribbeans tend to have poorer physical health compared with White American and White British people (Centers for Disease Control and Prevention, 2005; Schofield and Ashworth, 2007), characterised by higher numbers of co-morbid conditions, such that cardio-vascular disease and diabetes may also be complicated by depression, particularly amongst older patients (Ali et al., 2006; Trief, 2007), which is the demographic explored in this study. It is therefore not surprising that doctors are more attuned to look for, and to prioritise the diagnosis and treatment of physical rather than mental health problems amongst older black patients, which may be more acute and life threatening, and have a more straightforward treatment plan. Nevertheless, the findings point to the need for tighter specification of how to detect depression amongst black patients in both countries, and particularly for guidance about disentangling the presentation of depression from diabetes. .

The only evidence suggestive of systematic bias was that US doctors considered fewer potential outcomes associated with the list of patient problems generated for African American compared with White American patients. In other words, there was less evidence of doctors thinking through the consequences of treating or not treating particular conditions for African American compared with White American patients. This indicates a less elaborate and careful assessment of African American patients' care needs or of intervention impacts on their life circumstances. We did not however detect any differences in the number or type of interventions they wished to instigate for either patient group.

The study findings suggest that on the whole, doctors in both the US and UK approach clinical decision making in a largely similar way and that patient race accounts for relatively few differences in these processes. However, it is possible that there are variations in clinical decision making associated with patient race that were not uncovered because of a failure in the standardised patient presentations and the use of an analogue study to present a clinically realistic patient to elicit generalisable doctor behaviour. We do not think this is the case because the actors were judged by study doctors as looking and sounding very much like actual patients, and the clinical scenarios were judged as plausible and realistic

Table 3
Most frequently cited patient cue types in doctors' narratives by patient race and country.

Type of patient cue	Number of doctors' narratives with cue						Significance level ($P=$)		
	White patients			Black patients					
	All	US	UK	All	US	UK	All	US	UK
Pain	54	28	26	47	20	27	0.26	0.04[a]	1.00
Mental health problems	44	24	20	35	16	19	0.20	0.19	1.00
Patient orientation to their health problems	36	18	18	38	16	22	0.41	1.00	0.38
Demographics	37	21	16	37	18	19	0.68	1.00	0.58
Sleep	38	24	14	34	19	15	0.84	0.72	1.00
Tiredness	28	15	13	35	15	20	0.08	0.58	0.10
Headache	34	14	20	29	14	15	0.70	0.59	0.27
Manner of symptom presentation	26	12	14	29	12	17	0.34	0.78	0.59
Previous stress episode	18	13	5	29	14	15	0.02[a]	0.42	0.01[a]

[a] Chi square significant at the $p < 0.05$ level.

Table 4
Most frequently cited clinical inferences in doctors' narratives by patient race and country.

Type of clinical inference	Number of doctors' narratives with inference						Significance level ($P=$)		
	White patients			Black patients					
	All	US	UK	All	US	UK	All	US	UK
Emotional problems	55	28	27	49	22	27	0.35	0.04[a]	1.00
Depression	53	28	25	46	21	25	0.31	0.09	1.00
Rheumatic problem	37	18	19	36	16	20	0.41	1.00	1.00
Endocrine problem	16	8	8	27	12	15	0.02[a]	0.16	0.10
Cancer	24	13	11	19	9	10	0.56	0.58	1.00

[a] Chi square significant at the $P < 0.05$ level.

(McKinlay et al., 2006). These ratings are consistent with conclusions drawn from a recent systematic review of analogue studies that confirms the validity of the method in using recruited subjects (in this case doctors) to provide a proxy for the perceptions and judgments of those with whom they are asked to identify (Blanch-Hartigan et al., 2013). The video performances of the actors were tightly scripted both verbally and non-verbally, specifying exactly what the actors said and the body language used when delivering the script, so that the experimental manipulation adequately presented equivalent simulations — save for the factor of race.

6. Study limitations

There may have been potential limitations in using the 'think aloud' method in an international comparative study. It is possible that some doctors found it easier to engage with this data collection method, and cultural differences between the US and UK, where people in the UK are generally considered more reserved than their US counterparts, could have affected data quality. However our impressions from data collection and analysis were that most doctors felt comfortable with what they had been asked to do, and all were able to provide detailed accounts of parts, if not all, of their clinical decision making. So although we did not find many differences in doctors' CDM processes for black versus white patients, we did find some, and these provide useful insights.

A second alternative explanation of differences may be attributed to limitations in the study measures and coding approach. However we are confident that the coding framework used was sensitive and robust given the variation in the number of CDM elements derived from the CliniClass coding and evident in the study tables. These show clear differences in the number of cues (present, missing, and absent) that doctors considered and they match expectations about how doctors operate within the US compared with the UK health care systems. US doctors aim to and are expected to achieve more at first-contact patient visits, so that patients will usually come away with a diagnosis and prescribed treatment for depression. Pilot work for the study suggested that UK doctors on the other hand tend to see depressed patients over a series of visits, in order to explore the condition and patient responses to a diagnosis of depression and potential treatments, before instigating any.

We acknowledge that our study sample is relatively small and the data were collected at one time point only, limiting insight about within-case effects that might be revealed through repeated measures. There are also limitations to how generalisable our results are. The doctors' sample was almost entirely white. Only 22 (20%, 15 in the UK and 7 in the US) of the 256 doctors recruited did not have a white British or American background, and the majority of these were British Asians. Our study reflects clinical reality however, in that the majority of clinical decisions about black patients will have been and still are made by white rather than black doctors. Recent figures show about 4% of the US medical workforce are African-American (Bokus et al., 2009) while only 0.2% of all UK doctors has a African Caribbean background (General Medical Council, 2014). Doctors' narratives were also generated in response to older patient presentations only. This may have impeded our ability to detect the expected range of differences in doctors' CDM processes.

To generalise our findings, future research needs to be applied to doctors' thought and decision making processes about non-standardised patients, i.e. those presenting signs of depression through the natural verbal and body languages characteristic of their ethnic backgrounds. Comparison of findings with our own study should shed significant light on both disparity mechanisms and appropriate methods for studying them.

Another fruitful avenue for further research is to build on work already carried out by Cooper-Patrick et al. (1997) and Cooper et al. (2000, 2012). They investigated the impact of doctors' implicit

racial bias, social characteristics and communication behaviours on the willingness of black and white patients to disclose sensitive information about depression and emotional problems to them. This approach accords with the conclusions of Kales et al. (2005), who argued that disparities arise as a result of a complex interplay of patient–provider interactions. We are already conducting a study along these lines, which is designed to elaborate disparity mechanisms in depression care. This time, we also take account of the impact of doctors' race and doctor-patient race concordance on the quality of clinical encounters focussing on depression. Preliminary analyses are showing interesting findings that complement the work we have done here.

Acknowledgements

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