Public Health 237 (2024) 291–298

Contents lists available at ScienceDirect

Public Health

journal homepage: www.elsevier.com/locate/puhe

Original Research

Ethnic inequalities in primary care experiences for people with multiple long-term conditions: Evidence from the general practice patient survey☆

Brenda Hayanga [a,*], Mai Stafford [b], Laia Bécares [c]

[a] School of Health & Medical Sciences, City St. George's, University of London, Northampton Square, EC1V 0HB, London, UK
[b] Brent Council, Brent Civic Centre, Engineers Way, Wembley, HA9 0FJ, London, UK
[c] Department of Global Health and Social Medicine, King's College London, Bush House, Northeast Wing, 40 Aldwych, London, WC2B 4BG, UK

ARTICLE INFO

Keywords:
Ethnicity
Multiple long-term conditions
Primary care experience
Satisfaction
Inequality

ABSTRACT

Objectives: To examine the relationship between ethnicity and experiences of primary care for people with multiple long-term conditions (MLTCs) and assess the relative importance of demographic, practice, and area-level factors as influences on primary care experiences across ethnic groups.
Study design: A retrospective study using 2018–19 GP Patient Survey data linked to General Practice Workforce data and small area data published by the Office for National Statistics.
Methods: We conducted multilevel regression analysis to assess the relationship between ethnicity and experience of accessing primary care and interacting with healthcare professionals. We built separate regression models for each outcome and included (i) each covariate separately, (ii) demographic factors and (iii) demographic, practice, and area-level factors.
Results: Upon full adjustment Arab, Bangladeshi, Chinese, Indian, Pakistani, other Asian, mixed white and Asian, and other white people with MLTCs have lower levels of satisfaction with primary care access and interacting with healthcare professionals compared with white British people. The influence of demographic, practice and area-level factors is not uniform across ethnic groups; demographic factors account for the inequalities in levels of satisfaction with access to primary care between white British people and Black other, mixed other, mixed white & Black Caribbean and Gypsy & Irish Travellers. However, practice and area-level factors strengthen inequalities in the experience of accessing primary care for Bangladeshi, Indian and Pakistani people.
Conclusions: Given the link between patient satisfaction and patient-related health outcomes, the lower levels of satisfaction with accessing primary care and interacting with healthcare professionals among the aforementioned minoritised ethnic groups are concerning and require further scrutiny. Qualitative studies are required to understand and address the sources of poor experiences in primary care for minoritised people with MLTCs to improve patient-centred healthcare and outcomes.

Introduction

Minoritised ethnic people with multiple long-term conditions (MLTCs) face more disadvantage in the number, impact, and quality of care for their long-term conditions.[1–6] Despite this, very few studies have examined whether ethnic inequalities for people with MLTCs extend to patient experience, a key aspect of healthcare quality associated with lower readmission rates, lower mortality rates, better adherence to medication, and higher levels of trust.[7–11] Studies of single conditions suggest that minoritised ethnic patients report poorer experiences in primary care,[12–16] which can be explained by a number of factors including socio-demographic characteristics, practice-related factors such as low practice performance,[15,17] and staff/doctor's communication skills.[16] Relatedly, studies have shown that general practices that serve more socio-economically deprived populations tend to have the lowest patient satisfaction.[18] Such findings are concerning because minoritised ethnic people tend to be overrepresented in deprived neighbourhoods.[19] Some studies suggest that for minoritised ethnic people, decreased ethnic density is associated with increased satisfaction with health services.[20] However, little is known about the

☆ The data was analysed at Department of Global Health and Social Medicine, King's College London, Bush House, Northeast Wing, 40 Aldwych, London, WC2B 4BG

* Corresponding author. School of Health & Medical Sciences, City St. George's, University of London, Northampton Square, London EC1V 0HB, UK.
E-mail address: brenda.hayanga@city.ac.uk (B. Hayanga).

https://doi.org/10.1016/j.puhe.2024.10.018
Received 20 May 2024; Received in revised form 25 September 2024; Accepted 15 October 2024
Available online 30 October 2024

ways in which these wider processes impact the experiences for people with MLTCs.

Given the current emphasis on tackling healthcare inequalities and improving patient experience in the UK,[21,22] an investigation is required to ascertain whether there are any ethnic inequalities in patient experience for people with MLTCs. Examining how practice and area-level factors contribute to any observed inequalities is critical to understanding the modifiable factors that can be addressed to reduce ethnic health inequalities for people with MLTCs. Therefore, the aims of this study are to examine:

1) whether experiences of primary care vary across ethnic groups for people with MLTCs; and
2) the relative importance of demographic, area-level, and practice-level factors as influences on primary care experiences across ethnic groups for people with MLTCs.

Methods

Data

This analysis uses data from the 2018 and 2019 GP Patient Survey (GPPS), the General Practice Workforce (GPW), and small area data published by the Office for National Statistics (ONS).[23,24] We focus on two domains of patient experience, accessing primary care and interacting/communicating with healthcare staff, based on qualitative evidence which suggests that many people with MLTCs face challenges when booking appointments for their different health conditions especially when navigating inflexible, under-resourced healthcare systems.[25,26] Additionally, many patients with MLTCs feel that healthcare professionals do not take enough time to explain their conditions or treatment, leaving them unable to fully understand their diagnosis, treatment, medication, or expectations of them in terms of managing their conditions.[25,26]

We used the GPW series of Official Statistics to extract data on the number of full-time equivalent (FTE) general practitioners (GPs) and nurses in each practice together with the practice code. We used ONS data to obtain information on ethnic group and life expectancy at the Middle Layer Super Output Area (MSOA) from the Nomis website where the ONS publishes statistics on the population, society, and the labour market at national, regional, and local levels.[27]

Data linkage

We combined the 2018 and 2019 GPPS data and linked them with the 2018/2019 GPW data using the unique practice codes available in both datasets. Using the practice postcode, we combined this dataset with the ONS postcode directory to obtain the Middle Layer Super Output Areas (MSOA) codes which subsequently allowed linkage to area-level deprivation, area-life expectancy, and ethnic density.

Measures

Patient experience

We created a composite score from three questions relating to access and another composite score from six questions relating to interaction with healthcare professionals. See Supplementary Table 1 for the list of questions selected and the process of creating the composite scores.

Patient characteristics

We extracted the age-group, gender, and ethnicity of the respondents directly from the survey responses (See Supplementary Table 2 for details on how these variables were recoded). We included only patients who reported having two or more long-term physical and/or mental health conditions based on their responses about the presence or absence of 15 long-term physical and mental health conditions (Supplementary Table 3).

Practice and area characteristics

Through linkage with GPW data, we obtained the number of FTE GPs and nurses. From the practice list size, we created a practice-size variable comprising of five categories. We recoded the Index of Multiple Deprivation (IMD) scores into quintiles to denote the socio-economic deprivation of the practice.[28,29] We used area-life expectancy to provide an indication of the areas that have greater need.[30] We included ethnic density in our analyses as it has been negatively correlated with satisfaction with services.[20] However, studies also show a positive correlation between ethnic density and social cohesion.[31] Ethnic density may also foster the development of positive roles,[32] facilitate increased political mobilisation and material opportunities, and encourage healthy behaviour.[33] To calculate ethnic density, we obtained the total population and the population of each ethnic group within each MSOA from the small area data published by the ONS. We calculated the proportion for each ethnic group in each MSOA by dividing the number of people of an ethnic group by the total number of people in that MSOA.[31] We then converted the proportions to a percentage.

Statistical analysis

We created an analytical sample which included only people with MLTCs who had complete data on demographic, practice, and area-level variables (Fig. 1). The differences in demographic characteristics between people with missing ethnicity data and people with complete ethnicity data were negligible (Supplementary Table 4). To analyse the relationship between ethnicity and experience of accessing primary care and interacting with healthcare professionals, we used a three-level regression analysis, with MSOA as level 3, practice as level 2 and patients as level 1 to control for potential correlation of patients within each practice, and the correlation of practices within each MSOA. This approach allowed us to explore the extent of between-practice, and between-MSOA variation in responses and to avoid overstating the importance of practice-level or area-level factors as the source of variation in patient experience.[34] We built separate regression models for each outcome and included (i) each covariate separately, (ii) ethnicity, age and gender, and (iii) ethnicity, age, gender, number of FTE GPs and nurses, practice size, area-deprivation, area life expectancy and ethnic density. After running each model, we calculated the intraclass correlation coefficient to assess the percentage of total variation in patient experience attributable to practice-level and area-level factors. Having a long-term mental health condition might moderate the relationship between MLTCs and access to primary care or interaction with healthcare professionals. Thus, we conducted a sensitivity analysis by creating separate models for participants with and without MLTCs that include a mental health condition. We used RStudio (R04.2.0) for data linkage and Stata/MP 18 for all our analyses.[35]

Results

A total of 310,104 respondents were included in the analysis, 88 % of whom are of white British ethnicity (Table 1). There is a higher proportion of women (52 %) than men (48 %) and most of the sample are aged 65 years and over (61 %). Separate analyses reveals that nearly 60 % of respondents are retired (Supplementary Table 5). Just over half the sample have two long-term conditions (53 %). Only 8 % of the sample are registered in practices with more than 12,000 patients. Nearly a third of the sample are registered in practices that are in the most deprived quintile (28 %). The number of FTE nurses ranges from 0 to 32 with a median of 2. The number of FTE GPs ranges from 0 to 40 with a median of 4. The average area-life expectancy is 78.7 years. Ethnic density ranges from 0 to 98 % with a mean of 71/%. Among minoritised ethnic groups own ethnic density ranges from 0 to 2.6 % for Gypsy and Irish Travellers, to 0–83 % for the Indian ethnic group (Supplementary

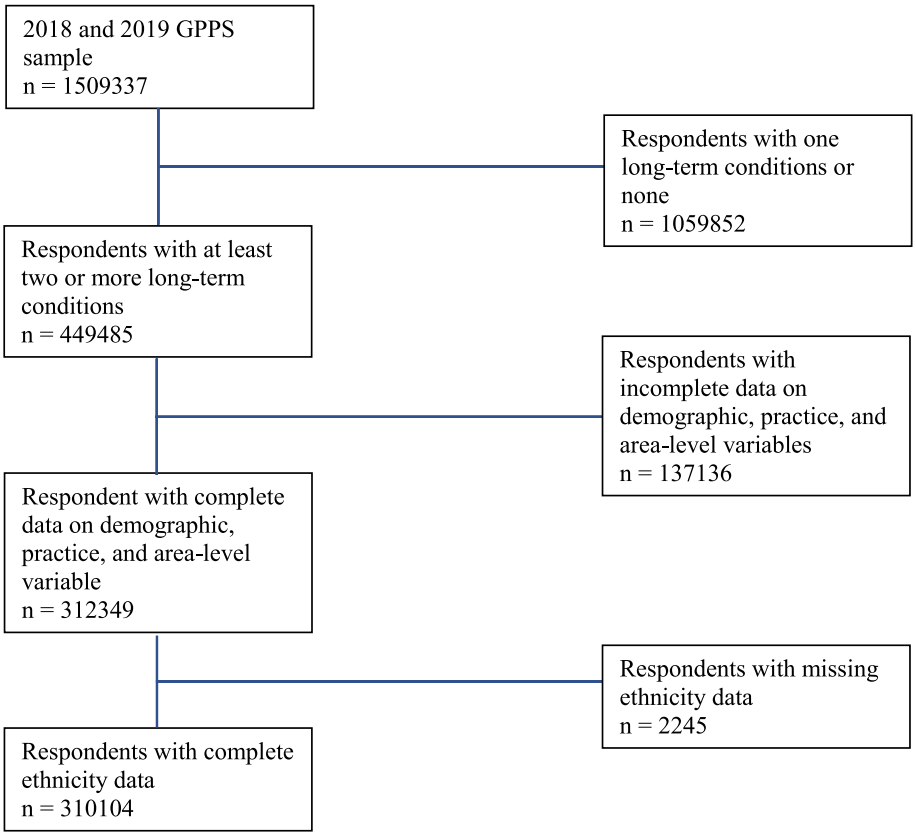

Fig. 1. Flow chart to get analytical sample.

Table 6). Overall, the levels of satisfaction are higher for interacting with healthcare professionals (86 %) than for accessing primary care services (80 %). Primary care experiences by ethnic group and a breakdown of the composite scores for each ethnic group is provided in Supplementary Tables 7a and 7b

Levels of satisfaction when accessing primary care services

In the unadjusted models, levels of satisfaction with the appointment times, types and booking experience are lower for women and younger patients than for men and older patients. The levels of satisfaction are higher in areas of high ethnic density, and area-life expectancy but lower in practices with high area-deprivation and with more FTE GPs, and nurses. Compared to practices with 3000–6000 patients, those with <3000 patients have higher levels of satisfaction but those with >6000 patients have lower levels of satisfaction (Table 2, Model 1). When compared to white British people, all minoritised ethnic groups are less satisfied with the appointment times, types and booking experience with the exception of Black African and Irish people whose levels of satisfaction are higher, and Black Caribbean and mixed white & Black African people whose levels of satisfaction are not significantly different (Table 2, Model 1).

Adjusting for demographic factors accounts for differences in levels of satisfaction with primary care access for people of other Black, mixed white & Black Caribbean, other mixed ethnicity and Gypsy/Irish travellers (Table 2, Model 2) and significantly attenuates effect sizes for most groups with lower satisfaction. This attenuation is greatest for Bangladeshi people whose effect size reduces by nearly three points. Additional adjustment for practice and area-level factors accounts for differences in satisfaction between white British people and other ethnic people and slightly attenuates the strength of the association for Arab, Chinese, other Asian, mixed white & Asian, and other white people. However, we observe an amplification of the effect size for Bangladeshi, Indian, and Pakistani people, meaning that their satisfaction is lower than expected given their practice and area-level characteristics (Table 3, Model 3).

The intraclass coefficient in the model adjusted for all factors suggests that 11 % of the total variation in levels of satisfaction with appointment types, times and booking experience is attributable to area-level and practice-level factors with the former comprising 2 % of this variation (Table 2, Model 3). An assessment of levels of satisfaction with appointment times, types and booking experience amongst people with MLTCs that include a mental health condition revealed similar patterns (Supplementary File 8).

Levels of satisfaction when interacting with healthcare professionals in primary care

The results from the regression analyses examining the association between levels of satisfaction when interacting with healthcare professionals and socio-demographic characteristics are presented in Table 3. In Model 1, where each covariate was analysed separately, we notice a similar pattern to the levels of satisfaction when accessing primary care. Compared to men and older patients, women and younger patients have lower levels of satisfaction with the extent to which healthcare professionals listen to patients, give them enough time, treat them with care and concern, involve them in healthcare decisions, meet their needs and are considered trustworthy and confident. Patients registered in practices with 12,000+ patients have lower levels of satisfaction than patients in practices with 3000–6000 patients. The levels of satisfaction are also lower in practices with more FTE nurses and in the more deprived areas. In contrast, levels of patient satisfaction are higher in practices with more FTE GPs, and areas with higher ethnic density, and area life expectancy (Table 3, Model 1).

When compared to the white British people, Irish people have higher levels of satisfaction but all minoritised ethnic groups have lower levels of satisfaction when interacting with healthcare professionals (Table 3,

Table 1
Characteristics of the study population.

	N	%
Total sample	310,104	100
Sex Male	148,913	48.02
Female	161,191	51.98
Age categories, years 75+	90,129	29.06
65–74	99,435	32.07
55–64	66,139	21.33
45–54	32,284	10.41
35–44	12,456	4.02
16–34	9661	3.12
Ethnicity Arab	689	0.22
Asian: Bangladeshi	1129	0.36
Asian: Chinese	742	0.24
Asian: Indian	7188	2.32
Asian: Pakistani	3734	1.20
Asian: Other Asian	2489	0.80
Black: African	2770	0.89
Black: Caribbean	3304	1.07
Black: Other	507	0.16
Mixed: White & Asian	650	0.21
Mixed: White & Black African	316	0.10
Mixed: White & Black Caribbean	650	0.21
Mixed: Other Mixed	673	0.22
Other Ethnic Group	2656	0.86
White: British	272,344	87.82
White: Gypsy & Irish Traveller	97	0.03
White: Irish	3577	1.15
White: Other	6589	2.12
Number of long-term conditions (LTCs) 2LTCs	161,830	52.19
3 LTCs	84,520	27.26
4+ LTCs	63,754	20.56
Practice list size <3k	47,367	15.27
3k-5999	109,959	35.46
6k-8999	83,422	26.90
9k-11999	44,972	14.50
12k+	24,384	7.86
Area deprivation Least deprived quintile IMD 5	42,850	13.82
IMD 4	50,899	16.41
IMD 3	59,729	19.26
IMD 2	70,695	22.80
IMD 1	85,931	27.71
Continuous variables	**Median**	**Range**
Number of FTE GPs	4.11	0–40
Number of FTE Nurses	1.88	0–32
	Mean	**SD**
Area Life Expectancy (years)	78.68	3.28
Own Ethnic Density (%)	70.43	29.61
Interaction with healthcare staff [Scale of 0–100]	85.67	18.8
Accessing primary [Scale of 0–100]	79.94	21.3

SD = standard deviation; IMD=Index of Multiple Deprivation; FTE = Full-Time Equivalent.

Model 1). Adjusting for demographic factors accounts for differences in the levels of satisfaction between Black Africans and white British people and we observe substantial attenuation of the effect size for all other minoritised groups, with the effect size for mixed white & Black Caribbeans reducing by nearly three points (Table 3, Model 2). After additional adjustment for area and practice level factors, the differences in levels of satisfaction between other mixed people and white British people are no longer significant and there is a slight attenuation in the effects sizes for all minoritised ethnic groups with lower levels of satisfaction when interacting with healthcare professional, with the greatest attenuation observed for Gypsy and Irish Travellers whose effect size reduces further by two thirds of a point (Table 3, Model 3).

The intraclass coefficient in the model adjusted for all factors suggests that 4 % of the total variation in the levels of satisfaction when interacting with healthcare professionals is attributable to area-level and practice level factors with area-level factors comprising 1 % of this variation (Table 3, Model 3). When we consider people with MLTCs that include a mental health condition, Bangladeshi, Indian, Pakistani, other Asian, Black Caribbean, other ethnic people, and other white people have lower levels of satisfaction with healthcare professional interaction than white British people (Supplementary Table 9).

Discussion

Principal findings

This paper documents, for the first time, ethnic inequalities among people with MLTCs in the experience of accessing primary care services (i.e. satisfaction with appointment times, types and booking experience) and interacting with healthcare professionals. After accounting for demographic, practice and area-level factors, people of Arab, Bangladeshi, Chinese, Indian, Pakistani, other Asian, mixed white & Asian, and other white ethnicity not only report lower levels of satisfaction with appointment times, types and booking experience than white British people, but they also report lower levels of satisfaction with the extent to which healthcare staff listen to them, give them enough time, treat them with care and concern, involve them in healthcare decisions, meet their needs and are regarded with trust and confidence.

The influence of demographic, practice and area-level factors is not uniform across ethnic groups. For example, among Black African people, the lower levels of satisfaction with healthcare staff interaction when compared to white British people are accounted for by age, and gender. These demographic factors also account for the differences in satisfaction with access to primary care between white British people and Black other, mixed other, mixed white & Black Caribbean and Gypsy & Irish Travellers. Of note is that adjustment for practice and area-level factors strengthen inequalities in the experience of accessing primary care for Bangladeshi, Indian and Pakistani people. The fact that for some ethnic groups inequalities in the experience of accessing primary care and interacting with healthcare professionals remain after adjusting for demographic, practice and area-level factors suggests that these inequalities are likely to be driven by other factors.

Study meaning

Our findings mirror those reported by others who have examined the experiences of primary care for different ethnic groups in the UK.[13,36] These studies also find that Black African people are most likely out of all ethnic groups to have a positive experience of making a GP appointment while Asian people are least likely to have a positive experience. Similar findings are reported by Lyratzopoulos, Elliott[37] who found that South Asian and Chinese people have less positive primary care experiences. However, the focus of these studies was not on MLTCs. Thus, our analyses contribute to the literature in this area by illuminating the experiences of people with MLTCs. Our finding that people with MLTCS from the main Asian ethnic groups as well as those who identify as other Asian and mixed white & Asian people have lower levels of satisfaction with primary care access and interaction with healthcare staff is concerning. They are partially supported by Mead and Roland who examined why evaluations of primary care among minoritised ethnic groups were poorer than those of white people.[16] They found that Asian people had lower evaluations of primary care, except for Chinese patients whose differences were accounted for by issues relating to communication with practice staff.[16] The authors propose that the lower levels of satisfaction for Asian respondents might be the result of a higher expectation of accessing primary care.[16] Others suggest that the experiences of Asian patients may be driven by a lower quality of communication.[17]

Despite language and communication issues being proffered as the reasons behind ethnic inequalities in primary care experiences for people of Asian ethnicity, these narratives dismiss the fundamental role of structural processes in shaping their experiences, particularly because it is the responsibility of the NHS service providers to ensure these services are made available to their patients free at the point of delivery.[38] Thus, language and communication difficulties are not the key drivers of poor health outcomes among many minoritised ethnic people, rather it is the

Table 2
Regression analysis models showing the association between satisfaction with accessing primary care and socio-demographic characteristics.

	Model 1		Model 2		Model 3	
	Models include each covariate separately		Adjusted for demographic characteristics		Additionally adjusted for practice and area-level factors	
	Regression Coefficients	**SE**	**Regression Coefficients**	**SE**	**Regression Coefficients**	**SE**
Ethnicity: *White British*	***Reference***		***Reference***		***Reference***	
Arab	−4.32[c]	(0.79)	−2.29[b]	(0.77)	−2.28[b]	(0.79)
Asian: Bangladeshi	−8.01[c]	(0.63)	−5.10[c]	(0.62)	−5.19[c]	(0.63)
Asian: Chinese	−3.57[c]	(0.74)	−2.31[b]	(0.73)	−2.15[b]	(0.76)
Asian: Indian	−5.73[c]	(0.27)	−4.73[c]	(0.26)	−4.80[c]	(0.29)
Asian: Pakistani	−8.30[c]	(0.37)	−6.34[c]	(0.36)	−6.46[c]	(0.37)
Asian: Other Asian	−2.94[c]	(0.42)	−1.01[a]	(0.41)	−0.97[a]	(0.44)
Black: African	1.34[c]	(0.40)	3.83[c]	(0.39)	3.91[c]	(0.42)
Black: Caribbean	0.21	(0.36)	0.89[a]	(0.36)	0.99[a]	(0.39)
Black: Other	−2.42[b]	(0.90)	0.40	(0.88)	0.55	(0.90)
Mixed: White & Asian	−4.98[c]	(0.79)	−2.40[b]	(0.77)	−2.18[b]	(0.80)
Mixed: White & Black African	−1.10	(1.13)	1.87	(1.11)	1.99	(1.13)
Mixed: White & Black Caribbean	−4.02[c]	(0.79)	−0.39	(0.78)	−0.17	(0.80)
Mixed: Other Mixed	−4.12[c]	(0.78)	−0.86	(0.76)	−0.66	(0.79)
Other Ethnic group	−2.37[c]	(0.40)	−0.87[a]	(0.39)	−0.75	(0.43)
White: Gypsy & Irish Traveller	−4.77[a]	(2.04)	−1.81	(2.00)	−1.52	(2.01)
White: Irish	2.07[c]	(0.34)	1.26[c]	(0.33)	1.51[c]	(0.40)
White: Other	−3.77[c]	(0.26)	−1.71[c]	(0.25)	−1.52[c]	(0.31)
Age categories:	***Reference***		***Reference***		***Reference***	
75+						
65–74	−3.24[c]	(0.09)	−3.23[c]	(0.09)	−3.23[c]	(0.09)
55–64	−7.73[c]	(0.10)	−7.65[c]	(0.10)	−7.64[c]	(0.10)
45-54	−10.2[c]	(0.13)	−10.1[c]	(0.13)	−10.0[c]	(0.13)
Under 45	−12.2[c]	(0.15)	−11.8[c]	(0.15)	−11.8[c]	(0.15)
Gender:	***Reference***		***Reference***		***Reference***	
Male						
Female	−1.27[c]	(0.07)	−0.87[c]	(0.07)	−0.86[c]	(0.07)
Full-Time Equivalent GPs	−0.32[c]	(0.02)			0.22[c]	(0.03)
Full-Time Equivalent Nurses	−0.82[c]	(0.04)			−0.44[c]	(0.05)
Practice size	***Reference***				***Reference***	
3k-5999						
<3k	3.43[c]	(0.26)			3.77[c]	(0.25)
6k-8999	−2.47[c]	(0.22)			−2.68[c]	(0.22)
9k-11,999	−3.81[c]	(0.27)			−4.13[c]	(0.30)
12k+	−5.47[c]	(0.34)			−5.52[c]	(0.41)
Area deprivation:	***Reference***				***Reference***	
Least deprived quintile						
IMD 4	−1.22[c]	(0.36)			−0.86[b]	(0.33)
IMD 3	−1.55[c]	(0.35)			−0.92[b]	(0.33)
IMD 2	−3.22[c]	(0.34)			−1.85[c]	(0.34)
IMD 1	−4.07[c]	(0.34)			−2.45[c]	(0.39)
Ethnic Density	0.034[c]	(0.00)			0.0046	(0.00)
Area Life expectancy	0.40[c]	(0.03)			0.17[c]	(0.04)
ICC: Area[d]			0.027		0.023	
ICC Practice: Area[d]			0.127		0.106	

N = 310104; SE: Standard Errors.
[a] $p < 0.05$.
[b] $p < 0.01$.
[c] $p < 0.001$; ICC: Intra-class correlation coefficient.
[d] Middle Layer Super Output Area; GPs: General Practitioner.

lack of appropriate interpreting services for people who do not speak English confidently.[39]

In this study, we found that as the number of FTE nurses increased, the level of satisfaction with appointment times, types and booking experience decreased. We also found that the levels of satisfaction when interacting with healthcare staff decreased with an increase in the number of nurses but increased with an increase in the number of FTE GPs. This finding is intriguing and might reflect that patients with MLTCs might prefer to see a GP rather than a nurse for their healthcare needs. Such findings have serious implications for strategies to increase the multidisciplinary workforce aimed at reducing the workload of GPs which has increased owing to the growing number of patients with complex needs (including MLTCs), challenges with recruitment, and underinvestment in general practice.[40]

We found that the levels of satisfaction with primary care access and interacting with healthcare professionals are better in areas of high ethnic density and areas of high life expectancy. One way in which ethnic density impacts on healthcare experiences for minoritised ethnic groups in our study could be through the ethnic make-up of the staff in general practice. Arguably, areas of high ethnic density may have healthcare staff whose ethnic identities reflect the patient population. Some international studies suggest that racial concordance contributes to more effective therapeutic relationships and improved healthcare.[41] Such findings underscore the importance of diversifying the ethnicity of healthcare worker.[41] However, others find that some patients prefer to be seen by practitioners from other ethnic groups owing to complex reasons such as the fear of breach of confidentiality and internalised racism.[42] Evidently, the effect of racial/ethnic concordance on patient experience and outcomes is complex. Further research is required to understand the mechanisms by which ethnic density influences patient

Table 3
Regression analysis models showing the association between satisfaction with healthcare professional interaction and socio-demographic characteristics.

	Model 1		Model 2		Model 3	
	Models include each covariate separately		Adjusted for demographic characteristics		Additionally adjusted for practice and area-level factors	
	Regression Coefficients	**SE**	**Regression Coefficients**	**SE**	**Regression Coefficients**	**SE**
Ethnicity: *White British*	***Reference***		***Reference***		***Reference***	
Arab	−4.66[c]	(0.71)	−3.42[c]	(0.71)	−3.02[c]	(0.73)
Asian: Bangladeshi	−8.62[c]	(0.57)	−6.65[c]	(0.56)	−6.27[c]	(0.57)
Asian: Chinese	−7.21[c]	(0.68)	−6.50[c]	(0.67)	−6.02[c]	(0.69)
Asian: Indian	−5.88[c]	(0.24)	−5.35[c]	(0.24)	−5.06[c]	(0.26)
Asian: Pakistani	−8.45[c]	(0.33)	−7.14[c]	(0.32)	−6.75[c]	(0.34)
Asian: Other Asian	−5.80[c]	(0.38)	−4.67[c]	(0.37)	−4.29[c]	(0.40)
Black: African	−1.30[c]	(0.36)	0.21	(0.36)	0.64	(0.38)
Black: Caribbean	−2.04[c]	(0.33)	−1.61[c]	(0.33)	−1.14[b]	(0.36)
Black: Other	−3.87[c]	(0.82)	−2.22[b]	(0.81)	−1.72[a]	(0.83)
Mixed: White & Asian	−4.24[c]	(0.72)	−2.55[c]	(0.72)	−2.05[b]	(0.74)
Mixed: White & Black African	−4.80[c]	(1.03)	−2.99[b]	(1.03)	−2.48[a]	(1.04)
Mixed: White & Black Caribbean	−4.60[c]	(0.72)	−2.10[b]	(0.72)	−1.55[a]	(0.74)
Mixed: Other Mixed	−3.86[c]	(0.71)	−1.67[a]	(0.70)	−1.17	(0.72)
Other Ethnic group	−5.63[c]	(0.36)	−4.70[c]	(0.36)	−4.25[c]	(0.39)
White: Gypsy & Irish Traveller	−7.46[c]	(1.86)	−5.39[b]	(1.85)	−4.77[a]	(1.86)
White: Irish	1.21[c]	(0.31)	0.75[a]	(0.31)	1.28[c]	(0.35)
White: Other	−6.10[c]	(0.23)	−4.69[c]	(0.23)	−4.27[c]	(0.27)
Age categories: *75+*	***Reference***		***Reference***		***Reference***	
65–74	−0.89[c]	(0.08)	−0.86[c]	(0.08)	−0.84[c]	(0.08)
55–64	−3.35[c]	(0.11)	−3.16[c]	(0.09)	−3.11[c]	(0.09)
45–54	−5.43[c]	(0.17)	−5.06[c]	(0.12)	−5.00[c]	(0.12)
Under 45	−8.86[c]	(0.20)	−8.27[c]	(0.14)	−8.19[c]	(0.14)
Gender: *Male*	***Reference***		***Reference***		***Reference***	
Female	−0.82[c]	(0.07)	−0.50[c]	(0.07)	−0.50[c]	(0.07)
Full-Time Equivalent GPs	0.10[c]	(0.02)			0.31[c]	(0.02)
Full-Time Equivalent Nurses	−0.12[c]	(0.03)			−0.23[c]	(0.03)
Practice size *3k-5999*	***Reference***				***Reference***	
<3k	0.086	(0.18)			0.65[c]	(0.17)
6k-8999	−0.12	(0.15)			−0.78[c]	(0.15)
9k-11,999	−0.36	(0.19)			−1.60[c]	(0.20)
12k+	−0.91[c]	(0.24)			−2.64[c]	(0.29)
Area deprivation: *Least deprived quintile*	***Reference***				***Reference***	
IMD 4	−0.67[b]	(0.23)			−0.31	(0.21)
IMD 3	−1.35[c]	(0.23)			−0.64[b]	(0.21)
IMD 2	−2.77[c]	(0.22)			−1.39[c]	(0.22)
IMD 1	−3.73[c]	(0.22)			−1.82[c]	(0.26)
Ethnic Density	0.053[c]	(0.00)			0.0079[b]	(0.00)
Area Life expectancy	0.35[c]	(0.02)			0.13[c]	(0.03)
ICC: Area[d]			0.018	(0.01)	0.013	(0.01)
ICC Practice: Area[d]			0.050	(0.01)	0.043	(0.01)

N = 310104.
[a] $p < 0.05$.
[b] $p < 0.01$.
[c] $p < 0.001$; ICC: Intra-class correlation coefficient.
[d] Middle Layer Super Output; GPs: General Practitioner.

experiences through ethnic dis/concordance.

Strengths and weaknesses

This study provides a novel contribution to our understanding of ethnic inequalities in the experiences of accessing primary care services and interacting with healthcare staff for people with MLTCs. Our analyses provide strong evidence of inequalities between minoritised ethnic groups in the experiences of primary care for people with MLTCs in domains that are important to them based on findings from qualitative studies.[25,26] The use of 18 ethnic group categories has allowed for the identification of ethnic groups at risk of poor primary care experiences. Our findings illuminate the experiences of ethnic groups that are often aggregated or excluded from analyses (e.g. Arab and mixed ethnic groups), thereby, missing vulnerable populations with unmet healthcare needs.

Our study is not without limitations. First, nearly two thirds of the sample (61 %) consisted of people aged 65 years and above. Therefore, it could be argued that the experiences of primary care services reported in this study may be driven by the experiences of older people. However, our study focuses on people with MLTCs. Given that the number of long-term conditions increases with age,[43] a sample that consists of older people can be expected. Nevertheless, we sought to isolate the true relationship between ethnicity and experiences of primary care and remove age-related influences by controlling for age (and other factors e.g. gender), in our analysis. Second, poor survey response rates and poor-quality ethnicity data can impact on the validity of a study. In 2018 and 2019, the GPPS response rate was 33 % and 34 % respectively.[23,24] Low response rates can result in biased survey results if the non-respondents and respondents have differing characteristics.[44] A breakdown of the 2018 and 2019 response rate by age reveals that the response rate of those aged 65–84 years was approximately 66 % and that of those aged 85+ years was over 50 %. Given that two thirds of our sample was aged 65 years and above, the higher response rate among older people reduces the risk of bias in our estimates.[45]

Conclusion

Our findings suggest that when compared to white British people with MLTCs, Arab, Bangladeshi, Chinese, Indian, Pakistani, other Asian, mixed white & Asian, and other white people have both lower levels of satisfaction with appointment times, types and booking experience and lower levels of satisfaction with confidence and trust in healthcare professionals and the extent to which they feel healthcare professionals listen to them, give them enough time, treat them with care and concern, involve them in healthcare decisions, and meet their needs. These inequalities are concerning given that patient experience is a key aspect of healthcare quality and is said to be associated with favourable health outcomes such as lower readmission rates, lower mortality rates, better adherence to medication, and higher levels of trust.[7–11] The poorer experiences of primary care might be one of many complex mechanisms by which some people with MLTCs from minoritised ethnic groups have poorer healthcare outcomes.[1–5,46] We found that the influence of demographic, practice and area-level factors is not uniform for the different minoritised ethnic groups. This finding alerts us to the heterogeneity of minoritised ethnic groups whose experiences are also varied. It underscores the importance of adopting an intersectionality approach to understanding the reasons underlying ethnic inequalities in the experiences of primary care and the need to move away from blanket approaches to improve healthcare experiences which ignore the nuances between different minoritised ethnic groups. In addition to assessing the influence of other practice and area-level factors, qualitative studies are crucial for the identification, understanding, and formulation of solutions which will effectively address the sources of poor satisfaction in primary care experiences for many people with MLTCs from minoritised ethnic groups.

Author statements

Ethical approval

Not applicable given the retrospective design and the use of pseudonymised data. However, the study is part of wider project examining ethnic inequalities in healthcare use and care quality for people with multiple long-term conditions which received ethical approval from the University of Sussex and King's College London.

Funding

This work was supported by the Health Foundation [AIMS 1874695].

Competing interests

The authors have no competing interest to declare.

Data sharing

The study uses individual-level data from General Practice Patient Survey (GPPS) which is available from Ipsos via a data sharing agreement with NHS England. Although these data are anonymised, they are considered sensitive data in the UK by the Data Protection Act and, therefore, cannot be shared publicly. Information about applying to use data from GPPS can be found at https://gp-patient.co.uk/contact.

The GPPS data was linked to data from the General Practice Workforce, and small area data published by the Office for National Statistics which is publicly available from https://digital.nhs.uk/data-and-information/publications/statistical/general-and-personal-medical-services and https://www.nomisweb.co.uk/respectively.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.puhe.2024.10.018.

References

1. Stafford M., Bécares L., Hayanga B., Ashworth M., Fisher R. Continuity of care in diverse ethnic groups; a general practice record study in England. Br J Gen Pract. 2022: 73(729):e257–e266.
2. Hayanga B, Stafford M, Ashworth M, Hughes J, Bécares L. Ethnic inequities in the patterns of personalized care adjustments for 'informed dissent' and 'patient unsuitable': a retrospective study using Clinical Practice Research Datalink. *J Publ Health*. 2023;45(4), e692–e701.
3. Hayanga B, Stafford M, Bécares L. Ethnic inequalities in multiple long-term health conditions in the United Kingdom: a systematic review and narrative synthesis. *BMC Publ Health*. 2023;23(1):178.
4. Hayanga B, Stafford M, Saunders CL, Bécares L. Ethnic inequalities in age-related patterns of multiple long-term conditions in England: analysis of primary care and nationally representative survey data. *Sociol Health Illness*. 2023;46(4):582–607.
5. Stafford M, Knight H, Hughes J, et al. Associations between multiple long-term conditions and mortality in diverse ethnic groups. *PLoS One*. 2022;17(4), e0266418.
6. Eto F., Samuel M., Henkin R., Mahesh M., Ahmad T., Angdembe A., Hamish McAllister-Williams R., Missier P., J Reynolds N., R Barnes M., Hull S., Finer S., Mathur R. Ethnic differences in early onset multimorbidity and associations with health service use, long-term prescribing, years of life lost, and mortality: A cross-sectional study using clustering in the UK Clinical Practice Research Datalink. PLoS Med. 2023; 20(10):e1004300.
7. Abel G, Mavaddat N, Elliott M, Lyratzopoulos G, Roland M. *Primary Care Experience of People with Longstanding Psychological Problems: Evidence from a National UK Survey*. vol. 23. 2011:2–9.
8. Tevis SE, Kennedy GD, Kent KC. Is there a relationship between patient satisfaction and favorable surgical outcomes? *Adv Surg*. 2015;49(1):221–233.
9. Tsai TC, Orav EJ, Jha AK. Patient satisfaction and quality of surgical care in US hospitals. *Ann Surg*. 2015;261(1):2–8.
10. Oluwole EO, Osibogun O, Adegoke O, Adejimi AA, Adewole AM, Osibogun A. Medication adherence and patient satisfaction among hypertensive patients attending outpatient clinic in Lagos University Teaching Hospital, Nigeria. *Niger Postgrad Med J*. 2019;26(2):129–137.
11. Durmuş A, Akbolat M. The impact of patient satisfaction on patient commitment and the mediating role of patient trust. *Journal of Patient Experience*. 2020;7(6): 1642–1647.
12. HM Government. Satisfaction with access to GP services [Online]. https://www.ethnicity-facts-figures.service.gov.uk/health/patient-experience/satisfaction-with-access-to-gp-services/latest; 2022. Accessed January 4, 2023.
13. Fisher R, Fraser C. Who gets in? What does the 2020 GP patient survey tell us about access to general practice? [Online] https://www.health.org.uk/news-and-comment/charts-and-infographics/who-gets-in; 2020. Accessed January 4, 2023.
14. Ahmed F, Abel GA, Lloyd CE, Burt J, Roland M. Does the availability of a South Asian language in practices improve reports of doctor–patient communication from South Asian patients? Cross sectional analysis of a national patient survey. In: *English General Practices*. vol. 16. 2015:55.
15. Lyratzopoulos G, Elliott M, Barbiere JM, et al. Understanding ethnic and other socio-demographic differences in patient experience of primary care: evidence from the English General Practice Patient Survey. *BMJ Quality & Safety*. 2012;21(1), 21.
16. Mead N, Roland M. Understanding why some ethnic minority patients evaluate medical care more negatively than white patients: a cross sectional analysis of a routine patient survey. In: *English General Practices*. vol. 339. 2009:b3450.
17. Burt J, Campbell J, Abel G, et al. *Programme Grants for Applied Research. Improving Patient Experience in Primary Care: A Multimethod Programme of Research on the Measurement and Improvement of Patient Experience. Southampton (UK): NIHR Journals Library Copyright © Queen's Printer and Controller of HMSO 2017*. Southampton SO16 7NS, UK: National Institute for Health Research, Evaluation, Trials and Studies Coordinating Centre, Alpha House, University of Southampton Science Park; 2017.
18. Fisher R, Dunn P, Asaria M, Thorlby R. Briefing: level or not? Comparing general practice in areas of high and low socioeconomic deprivation in England [Online] https://www.health.org.uk/publications/reports/level-or-not; 2020. Accessed April 8, 2022.
19. HM Government. People living in deprived neighbourhoods [Online] https://www.ethnicity-facts-figures.service.gov.uk/uk-population-by-ethnicity/demographics/people-living-in-deprived-neighbourhoods/latest; 2020. Accessed January 20, 2022.
20. Bécares L, Das-Munshi J. Ethnic density, health care seeking behaviour and expected discrimination from health services among ethnic minority people in England. *Health Place*. 2013;22:48–55.
21. NHS England. Tackling inequalities in healthcare access, experience, and outcomes [Online] https://www.england.nhs.uk/wp-content/uploads/2022/07/B1779-Actionable-Insights-Tackling-inequalities-in-healthcare-access-experience-and-outcomes-guidance-July-202.pdf; 2022. Accessed October 30, 2023.
22. NHS England. Core20PLUS5 (adults) – an approach to reducing healthcare inequalities [Online] https://www.england.nhs.uk/about/equality/equality-hub/national-healthcare-inequalities-improvement-programme/core20plus5/; 2023. Accessed October 30, 2023.
23. Ipsos MORI. GP patient survey – technical annex. 2018 annual report [Online] https://www.gp-patient.co.uk/downloads/archive/2018/GPPS%202018%20Technical%20Annex%20PUBLIC.pdf; 2018. Accessed November 2, 2023.

24. Ipsos M.O.R.I. GP patient survey 2019. Technical Annex. 2019. [Online] https://gp-patient.co.uk/downloads/2019/GPPS_2019_Technical_Annex_PUBLIC.pdf. [Accessed 2 November 2023].
25. Duguay C, Gallagher F, Fortin M. The experience of adults with multimorbidity: a qualitative study. *J Comorbidity*. 2014;4:11–21.
26. The Richmond Group of Charities, Impact on Urban health. You only had to ask. What people with multiple conditions say about health equity. A report from the Taskforce on Multiple Conditions [Online] 2021 https://richmondgroupofcharities.org.uk/sites/default/files/youonlyhadtoask_fullreport_july2021_final.pdf; July 2021. Accessed July 29, 2021.
27. Nomis Nomis. Official census and labour market statistics [Online] https://www.nomisweb.co.uk/Last; 2023. Accessed November 2, 2023.
28. Ipsos MORI. GP patient survey - technical annex. 2015-2016 annual report. https://www.gp-patient.co.uk/downloads/archive/2016/July/July%202016%20National%20Technical%20Report.pdf; 2016. Accessed June 22, 2022.
29. Ipsos MORI. GP patient survey - technical annex. 2017 annual report. https://www.gp-patient.co.uk/downloads/archive/2017/GPPS%202017%20Technical%20Annex%20PUBLIC.pdf; 2017. Accessed June 22, 2022.
30. Office for National Statistics. Life Expectancy releases and their different uses [Online] https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/articles/lifeexpectancyreleasesandtheirdifferentuses/2018-12-17; 2022. Accessed November 2, 2023.
31. Bécares L, Cormack D, Harris R. Ethnic density and area deprivation: neighbourhood effects on Māori health and racial discrimination in Aotearoa/New Zealand. *Soc Sci Med*. 2013;88:76–82.
32. Smaje C. Race and ethnicity. True colors. *Health Serv J*. 1995;105:28–29.
33. Karlsen S, Nazroo JY. Relation between racial discrimination, social class, and health among ethnic minority groups. *Am J Publ Health*. 2002;92(4):624–631.
34. Leckie G. Three-level multilevel models. *LEMMA VLE Module*. 2013;11:1–47. http://www.bristol.ac.uk/cmm/learning/course.html. Accessed November 3, 2023.
35. Ripley BD, Murdoch IA, Kalibera T. R for windows FAQ [Online] https://cran.rstudio.com/bin/windows/base/rw-FAQ.html; 2022. Accessed June 15, 2022.
36. NHS Outcomes Framework. Satisfaction with access to GP services [Online]. https://www.ethnicity-facts-figures.service.gov.uk/health/patient-experience/satisfaction-with-access-to-gp-services/latest; 2019. Accessed November 8, 2023.
37. Lyratzopoulos G, Elliott M, Barbiere JM, Henderson A, Staetsky L, Paddison C. Understanding ethnic and other socio-demographic differences in patient experience of primary care: evidence from the English General Practice Patient. *Surveyor*. 2012;21:21–29.
38. HM Government. Language interpreting and translation: migrant health guide [Online] https://www.gov.uk/guidance/language-interpretation-migrant-health-guide; 2021. Accessed August 9, 2024.
39. Kapadia D, Zhang J, Salway S, et al. Ethnic inequalities in healthcare: a rapid evidence review [Online] https://www.nhsrho.org/wp-content/uploads/2022/02/RHO-Rapid-Review-Final-Report_v.7.pdf; 2022. Accessed April 4, 2022.
40. Primary Care Workforce Commission. *The Future of Primary Care: Creating Teams for Tomorrow*. 2015.
41. Jetty A, Jabbarpour Y, Pollack J, Huerto R, Woo S, Petterson S. Patient-physician racial concordance associated with improved healthcare use and lower healthcare expenditures in minority populations. *J Racial Ethn Health Disparities*. 2022;9(1):68–81.
42. Keshet Y. Ethnic discordance: why do some patients prefer to be treated by physicians from other ethnic groups? *Soc Sci Med*. 2019;235, 112358.
43. Barnett K, Mercer SW, Norbury M, Watt G, Wyke S, Guthrie B. Epidemiology of multi- morbidity and implications for health care, research and medical education: a cross- sectional study. *The Lancet online*. 2012;380:37–43.
44. Safdar N, Abbo LM, Knobloch MJ, Seo SK. Research methods in healthcare epidemiology: survey and qualitative research. *Infect Control Hosp Epidemiol*. 2016;37(11):1272–1277.
45. Morton SMB, Bandara DK, Robinson EM, Carr PEA. In the 21st Century, what is an acceptable response rate? *Aust N Z J Publ Health*. 2012;36(2):106–108.
46. Hayanga B, Stafford M, Bécares L. Ethnic inequalities in healthcare use and care quality among people with multiple long-term health conditions living in the United Kingdom: a systematic review and narrative synthesis. *Int J Environ Res Publ Health*. 2021;18(23), 12599.