

# Ethnic inequalities in health-related quality of life among older adults in England: secondary analysis of a national cross-sectional survey

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## Summary

**Background** The population of older adults (ie, those aged  $\geq 55$  years) in England is becoming increasingly ethnically diverse. Previous reports indicate that ethnic inequalities in health exist among older adults, but information is limited by the paucity of data from small minority ethnic groups. This study aimed to analyse inequalities in health-related quality of life (HRQoL) and five determinants of health in older adults across all ethnic groups in England.

**Methods** In this cross-sectional study, we analysed data from five waves (July 1, 2014, to April 7, 2017) of the nationally representative English General Practice Patient Survey (GPPS). Study participants were adults aged 55 years or older who were registered with general practices in England. We used regression models (age-adjusted and stratified by gender) to estimate the association between ethnicity and HRQoL, measured by use of the EQ-5D-5L index and its domains (mobility, self-care, usual activities, pain or discomfort, and anxiety or depression). We also estimated associations between ethnicity and five determinants of health (presence of long-term conditions or multimorbidity, experience of primary care, degree of support from local services, patient self-confidence in managing own health, and degree of area-level social deprivation). We examined robustness to differential handling of missing data, alternative EQ-5D-5L value sets, and differences in area-level social deprivation.

**Findings** There were 1416793 GPPS respondents aged 55 years and older. 1394361 (98.4%) respondents had complete data on ethnicity and gender and were included in our analysis. Of these, 152710 (11.0%) self-identified as belonging to minority ethnic groups. HRQoL was worse for men or women, or both, in 15 (88.2%) of 17 minority ethnic groups than the White British ethnic group. In both men and women, inequalities were widest for Gypsy or Irish Traveller (linear regression coefficient  $-0.192$  [95% CI  $-0.318$  to  $-0.066$ ] in men;  $-0.264$  [ $-0.354$  to  $-0.173$ ] in women), Bangladeshi ( $-0.111$  [ $-0.136$  to  $-0.087$ ] in men;  $-0.209$  [ $-0.235$  to  $-0.184$ ] in women), Pakistani ( $-0.084$  [ $-0.096$  to  $-0.073$ ] in men;  $-0.206$  [ $-0.219$  to  $-0.193$ ] in women), and Arab ( $-0.061$  [ $-0.086$  to  $-0.035$ ] in men;  $-0.145$  [ $-0.180$  to  $-0.110$ ] in women) ethnic groups, with magnitudes generally greater for women than men. Differentials tended to be widest for the self-care EQ-5D-5L domain. Ethnic inequalities in HRQoL were accompanied by increased prevalence of long-term conditions or multimorbidity, poor experiences of primary care, insufficient support from local services, low patient self-confidence in managing their own health, and high area-level social deprivation, compared with the White British group.

**Interpretation** We found evidence of wide ethnic inequalities in HRQoL and five determinants of health for older adults in England. Outcomes varied between minority ethnic groups, highlighting heterogeneity in the direction and magnitude of associations. We recommend further research to understand the drivers of inequalities, together with policy changes to improve equity of socioeconomic opportunity and access to services for older adults from minority ethnic groups.

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## Introduction

There is a pressing need to understand the health of older adults (ie, those aged  $\geq 55$  years) from minority ethnic groups in England.<sup>1</sup> Although minority ethnic groups in England have young age structures relative to the whole population, historic migration patterns mean that there are substantial and increasing numbers of older people from minority ethnic groups, including settled migrants and British-born individuals.<sup>2</sup>

Estimates of life expectancy and healthy life expectancy at birth are lower for most minority ethnic groups than for White British people in England, with some large inequalities.<sup>3</sup> For example, compared with their White British counterparts, estimates of disability-free life expectancy are approximately 10 years lower for Bangladeshi men and 12 years lower for Pakistani women.<sup>3</sup> Estimates from surveys and longitudinal studies indicate higher burdens of long-term conditions

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### Research in context

#### Evidence before this study

Populations in England and across Europe are ageing, and the racial and ethnic diversity of older adult populations (ie, those aged  $\geq 55$  years) is increasing. The existing evidence suggests that there are substantial health inequalities between ethnic groups, with particularly wide inequities among older adults. However, detailed information on health inequalities between ethnic groups is scarce. In addition, there has been very little exploration of the causes of ethnic health inequalities, with almost all European health inequalities research focusing on the social gradient as a determinant of health. To identify the pathways through which ethnic inequalities in health could arise, it will be important to explore potential differences in a range of determinants of health, such as long-term health conditions, access to high-quality and appropriate health care, social support, work, and general living environments, and access to socioeconomic opportunities.

We searched PubMed and Google Scholar on July 31, 2020, using the search terms “ethnic\*” AND “ineq\*” OR “disparit\*” AND “health”. We searched for primary research and reviews published in English from database inception up to the date of the literature search. Although no strict exclusion criteria were applied, we focused on studies done in the UK and other European countries, as the large body of literature from the USA mostly centres on ethnic inequalities in health insurance coverage, and is therefore less relevant to the English setting. The main literature search was supplemented by a manual search of reference lists to identify additional publications, as well as searches using the same keywords in Google and the UK Government official documents record to identify relevant grey literature. We found only four primary research articles describing or identifying drivers of ethnic health inequalities that included analyses specifically for older adults in England or across Europe, and sought to address this research gap with this study.

#### Added value of this study

We used age-adjusted regression models to provide the first detailed description of ethnic inequalities in health-related quality of life (HRQoL) in older adults in England, using a large nationally representative cross-sectional survey. Notably, we were able to identify health inequalities among older adults from smaller minority ethnic groups who are frequently excluded from research because of small sample sizes. We also documented ethnic inequalities in several important determinants of health, from proximal drivers, such as multimorbidity, to differences in experiences of primary care and support from local services, and to upstream inequities in area-level social deprivation.

#### Implications of all the available evidence

We found that there are wide ethnic inequalities in health among older adults in England, with the average HRQoL decrement among Bangladeshi, Pakistani, Arab, and Gypsy or Irish Traveller ethnic groups similar to, or greater than, the decrement associated with a 20-year increase in age in the whole population. Most minority ethnic groups in England also have higher proportions of older adults with long-term conditions compared with the White British group, with HRQoL outcomes potentially compounded by an increased probability of having a poor experience of primary care, of receiving insufficient support from local services to manage long-term conditions, and of living in more socially deprived neighbourhoods. There is an urgent need for longitudinal research to understand the causal pathways through which structural, institutional, and interpersonal racism act to generate ethnic inequalities in health. Longitudinal studies should also be accompanied by policy reform to improve ethnic equity of socioeconomic opportunity, service provision, and health outcomes.

For the UK Government official documents record see <https://www.gov.uk/official-documents>

and poorer self-rated health among older adults from most minority ethnic groups than those with a White British background.<sup>4-10</sup> Some studies have provided evidence of an interaction between ethnicity, gender, and age, with disparities often greater for women than men and increasing with age.<sup>3,4,7-9</sup> This observation could be due to life-course effects, with a cumulative compounding of disadvantage originating from the experience of structural, institutional, and interpersonal racism.<sup>11</sup> For individuals born abroad, there could have been health disadvantages in their country of birth and periods of vulnerability before, during, and after migration—although, these are far from universal experiences.<sup>11</sup>

Recognising heterogeneity between groups and across outcomes is important for understanding the complexities of ethnic inequalities in health, with differences between some minority ethnic groups greater than those between any given minority ethnic group and the White British ethnic group.<sup>3,10,11</sup> However, this heterogeneity is frequently

overlooked, with distinct groups aggregated into broader categories because of small sample sizes, despite little or no similarity in health or exposures.<sup>4</sup> Scarce representation in national datasets, poor recording of ethnicity in general practice,<sup>12</sup> and no ethnicity documentation on death certificates<sup>3</sup> frequently hinder research. Older minority ethnic adults are particularly excluded from research,<sup>1</sup> with almost all studies and government reports using data from the infrequent Health Survey for England “ethnic minority boost” samples, most recently done in 1999 and 2004.<sup>4-7,9,10</sup> This marginalisation in research reflects a broader lack of attention on ethnic inequalities, with the social gradient in health dominating the health equity agenda throughout Europe.<sup>4,13</sup>

As the disproportionate burden of deaths due to COVID-19 in minority ethnic groups<sup>14</sup> and the surrounding political debate have highlighted, a detailed description of ethnic inequalities in health among older adults in England is needed, together with research into the drivers

of inequalities. This study aims to describe ethnic inequalities in health for older adults using data from five waves (2015–17) of the English General Practice Patient Survey (GPPS), which is a large, nationally representative, cross-sectional survey. This large sample allows estimation of ethnic inequalities in health for older adults, even among smaller ethnic groups, including Arab and Gypsy or Irish Traveller. We use a robust multidomain measure of health-related quality of life (HRQoL), and explore several determinants of health as intermediate outcomes. We consider proximal factors, including multimorbidity, intermediate determinants (eg, health-care experiences and support from local services), and finally, area-level social deprivation, which captures aspects of the broader context in which health is produced.

## Methods

### Study design and population

In this cross-sectional study, we analysed data from five waves (2015–17) of the GPPS, collected biannually for the 2015 survey year (publication fieldwork dates July 1–Oct 9, 2014 [wave one], and Jan 5–April 3, 2015 [wave two]),<sup>15</sup> and for the 2016 survey year (publication fieldwork dates July 1–Oct 2, 2015 [wave three], and Jan 4–April 1, 2016 [wave four]),<sup>16</sup> and as a single larger wave for the 2017 survey year (publication fieldwork dates Jan 3–April 7, 2017 [wave five]).<sup>17</sup> These waves were selected for pragmatic reasons (the GPPS was re-developed for the 2015 and 2018 survey publication years).<sup>15–17</sup> The GPPS uses repeated stratified random sampling of adults (aged  $\geq 18$  years) registered with general practices; therefore, individuals can complete the survey more than once but this information cannot be tracked. The survey is posted to patients for self-completion and is available in 17 languages. We used the weightings provided to adjust for survey design and determinants of non-response. All questions were developed following qualitative research and cognitive testing by Ipsos MORI and National Health Service (NHS) England.<sup>15–17</sup>

For the purpose of this study, we included GPPS respondents aged 55 years or older. Patients are eligible for inclusion in the GPPS if they have a valid NHS number, have been registered with a general practice continuously for at least 6 months, and are aged 18 years or older.

No ethical approval was required for this study.

### Procedures

We used responses on gender (male or female), age group (55–64 years, 65–74 years, 75–84 years, or  $\geq 85$  years), and self-identified ethnicity, based on UK 2011 census categories,<sup>18</sup> across five metagroups: White ethnicity (British or Northern Irish, Irish, Gypsy or Irish Traveller, or other White ethnicity); mixed or multiple ethnic groups (White and Black Caribbean, White and Black African, White and Asian, or other mixed or multiple ethnic groups); Asian

ethnicity (Indian, Pakistani, Bangladeshi, Chinese, or any other Asian ethnicity); Black (African, Caribbean, or any other Black ethnicity); and other ethnic group (Arab or any other ethnicity). We recoded neighbourhood-level Index of Multiple Deprivation scores (assigned by residential postcode) into quintiles, ranging from least deprived (Q1) to most deprived (Q5).<sup>18</sup>

HRQoL was recorded by use of the EQ-5D-5L, which measures health across the following five domains: mobility (ie, walking), self-care (ie, washing or dressing), ability to do usual activities (eg, work, study, do housework, and take part in family or leisure activities), pain or discomfort, and anxiety or depression. Each domain is scored using five levels: no problems, some problems, moderate problems, severe problems, or extreme problems.<sup>19</sup> We computed a composite EQ-5D-5L index using the English crosswalk health-state value set.<sup>20</sup> Value sets are generated by use of an international protocol, with health states assigned values based on modelling of data from time trade-off and discrete choice experiments with randomly selected members of the public.<sup>19,20</sup> The index ranges from 1 (perfect health) to  $-0.594$  (poorest health), with values lower than 0 representing health states rated by the general population as being worse than death.

Respondents indicated whether they had one or more of the following 14 specified or any other long-term conditions: high blood pressure, arthritis or long-term joint problems, diabetes, long-term back problems, asthma or long-term chest problems, angina or long-term heart problems, deafness or severe hearing impairment, cancer in the past 5 years, long-term mental health problems, kidney or liver problems, neurological problems, blindness or severe visual impairment, Alzheimer's disease or dementia, or epilepsy. We measured the degree of multimorbidity as a count of long-term conditions.

We defined patient experiences of primary care as poor if respondents rated their experience as “very poor”, “fairly poor”, or “neither good nor poor”, whereas ratings of “very good” or “fairly good” were used to define a good experience. We defined insufficient support from local services as respondents reporting “insufficient support” in response to the question “in the last 6 months, have you had enough support from local services or organisations to help you to manage your long-term health condition(s)?” We classified respondents as having low self-confidence in managing their health if they reported being “not very” or “not at all” confident, whereas those who reported being “very” or “fairly” confident were classified as having high self-confidence.

### Statistical analysis

Sample size was determined by the number of GPPS respondents, and was not under the control of the research team. We restricted analyses to respondents

	Total (n=1 394 361)	Minimal dataset (n=1 100 071)*
<b>White ethnicity</b>		
British or Northern Irish	1 241 651 (89.1%)	991 003 (90.1%)
Irish	18 522 (1.3%)	13 189 (1.2%)
Gypsy or Irish Traveller	226 (0.02%)	164 (<0.1%)
Other White ethnicity	34 527 (2.5%)	25 411 (2.3%)
<b>Mixed or multiple ethnic groups</b>		
White and Black Caribbean	1 325 (0.1%)	941 (0.1%)
White and Black African	790 (0.1%)	582 (0.1%)
White and Asian	1 235 (0.1%)	975 (0.1%)
Other mixed or multiple ethnic groups	1 753 (0.1%)	1 219 (0.1%)
<b>Asian ethnicity</b>		
Indian	24 480 (1.8%)	18 049 (1.6%)
Pakistani	9 257 (0.7%)	6 689 (0.6%)
Bangladeshi	2 084 (0.2%)	1 469 (0.1%)
Chinese	4 246 (0.3%)	3 290 (0.3%)
Other Asian ethnicity	10 701 (0.8%)	7 737 (0.7%)
<b>Black ethnicity</b>		
African	7 298 (0.5%)	5 513 (0.5%)
Caribbean	10 762 (0.8%)	7 545 (0.7%)
Other Black ethnicity	3 894 (0.3%)	2 517 (0.2%)
<b>Other ethnic group</b>		
Arab	1 285 (0.1%)	988 (0.1%)
Any other ethnicity	20 325 (1.5%)	12 790 (1.2%)
<b>Gender</b>		
Male	645 874 (46.3%)	526 901 (47.9%)
Female	748 487 (53.7%)	573 170 (52.1%)
<b>Age group, years</b>		
55–64	485 421 (34.8%)	397 642 (36.2%)
65–74	511 428 (36.7%)	412 568 (37.5%)
75–84	300 241 (21.5%)	221 888 (20.2%)
≥85	97 271 (7.0%)	67 973 (6.2%)
<b>Health-related quality of life</b>		
EQ-5D-5L index score	0.754 (0.247)	0.752 (0.246)

(Table continues in next column)

	Total (n=1 394 361)	Minimal dataset (n=1 100 071)*
(Continued from previous column)		
<b>Multimorbidities†</b>		
0	256 299 (20.0%)	241 471 (22.0%)
1	450 701 (35.2%)	382 423 (34.8%)
2	296 018 (23.1%)	250 144 (22.7%)
3	157 741 (12.3%)	130 487 (11.9%)
4	72 453 (5.7%)	58 531 (5.3%)
≥5	47 135 (3.7%)	37 015 (3.4%)
<b>Long-term health conditions‡</b>		
High blood pressure	487 925 (35.0%)	407 631 (37.1%)
Arthritis or long-term joint problems	340 838 (24.4%)	277 220 (25.2%)
Any other long-term condition§	201 512 (14.5%)	172 803 (15.7%)
Diabetes	188 614 (13.5%)	156 779 (14.3%)
Long-term back problem	185 224 (13.3%)	150 340 (13.7%)
<b>Overall experience of primary care</b>		
Good	1 250 592 (91.5%)	1 007 528 (91.6%)
Poor	115 998 (8.5%)	92 543 (8.4%)
<b>Support from local services to manage long-term conditions</b>		
Sufficient support or have not needed such services	1 123 335 (93.5%)	1 031 018 (93.7%)
Insufficient support	78 282 (6.5%)	69 053 (6.3%)
<b>Patient self-confidence in managing their health</b>		
Have confidence	1 246 023 (92.2%)	1 020 734 (92.8%)
Do not have confidence	105 323 (7.8%)	79 337 (7.2%)
<b>Index of Multiple Deprivation quintile</b>		
Q1	248 642 (17.8%)	206 230 (18.8%)
Q2	270 005 (19.4%)	219 114 (19.9%)
Q3	282 303 (20.3%)	224 954 (20.5%)
Q4	286 102 (20.5%)	223 387 (20.3%)
Q5	306 596 (22.0%)	226 386 (20.6%)

Data are n (%) or mean (SD). \*Restricted to patients with complete data on age, gender, ethnicity, and all outcomes of interest (appendix p 1). †Number of long-term health conditions. ‡Data are shown for the five most prevalent of the 14 specified and any other long-term conditions reported in the survey. §Excludes the 14 specified long-term conditions listed in the English General Practice Patient Survey.

**Table: Baseline characteristics of the sample population**

with complete data on age, gender, ethnicity, and the outcome of interest for each analysis. Due to differences in the amount of missing data between outcomes, we allowed samples to vary by outcome in the main analysis (appendix p 1).

The primary outcome was the association between ethnicity and HRQoL, measured by use of the EQ-5D-5L index. We used linear regression to examine associations between ethnic group and EQ-5D-5L index, adjusting for age, gender, and survey year. We did not add further covariates in the main analysis because we hypothesised that the other variables explored in this analysis are on the causal pathway between ethnicity and HRQoL; therefore,

their inclusion as covariates would underestimate total ethnic inequalities in HRQoL. Since formal mediation analysis is not recommended with cross-sectional data, we presented results as a series of parallel intermediate outcomes to explore potential pathways.

The secondary outcomes were the association between ethnicity and five determinants of health (presence of long-term conditions or multimorbidity, experience of primary care, degree of support from local services, patient self-confidence in managing own health, and degree of area-level social deprivation). We used binary logistic regression to estimate associations between

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ethnicity and each long-term condition, negative binomial regression to estimate long-term condition counts, and ordinal logistic regression to estimate associations between ethnicity and each level of each EQ-5D-5L domain and Index of Multiple Deprivation quintile. We compared ordinal logistic regression models with generalised models to confirm that the parallel trends assumption was reasonable. When the assumption was violated, we dichotomised variables at meaningful boundaries; therefore, we used binary logistic regression to estimate associations between ethnicity and a poor experience of primary care, insufficient support from services, and low patient self-confidence in managing their own health.

We ran regressions separately by gender, adjusted for age group and survey year, and corrected standard errors for heteroscedasticity. We re-ran regressions for EQ-5D-5L index stratified by age group, and re-ran them separately, age-adjusted with Index of Multiple Deprivation quintile included as a covariate. We obtained age-standardised mean EQ-5D-5L index estimates by ethnicity and gender through direct age-standardisation using the complete sample as the reference population. We presented unweighted descriptive statistics, but weighted other analyses for design and non-response. We presented results from logistic regressions as odds ratios (ORs) with 95% CIs, and from negative binomial regressions as incidence rate ratios. No allowance was made for multiple hypothesis testing because with many groups and several outcomes we needed to balance type I and type II errors, and considered that the most appropriate approach in this case was not to adjust. To balance the decision not to adjust, we interpret the results cautiously in terms of broad conclusions arising from differences consistent across outcomes and that apply to several ethnic groups.

For sensitivity and subgroup analyses, we re-estimated associations between ethnicity and EQ-5D-5L index using alternative English EQ-5D-5L<sup>21</sup> and Dutch EQ-5D-5L value sets.<sup>22</sup> We re-estimated associations between ethnicity and insufficient support from local services after excluding older adults without long-term conditions. In addition, we re-estimated EQ-5D-5L index associations using the minimal dataset (ie, those with data on age, gender, ethnicity, and all outcomes of interest), and presented missing data by ethnicity (appendix p 5).

Unless otherwise stated, all comparisons are to the White British (ie, British or Northern Irish) ethnicity reference group for all analyses.

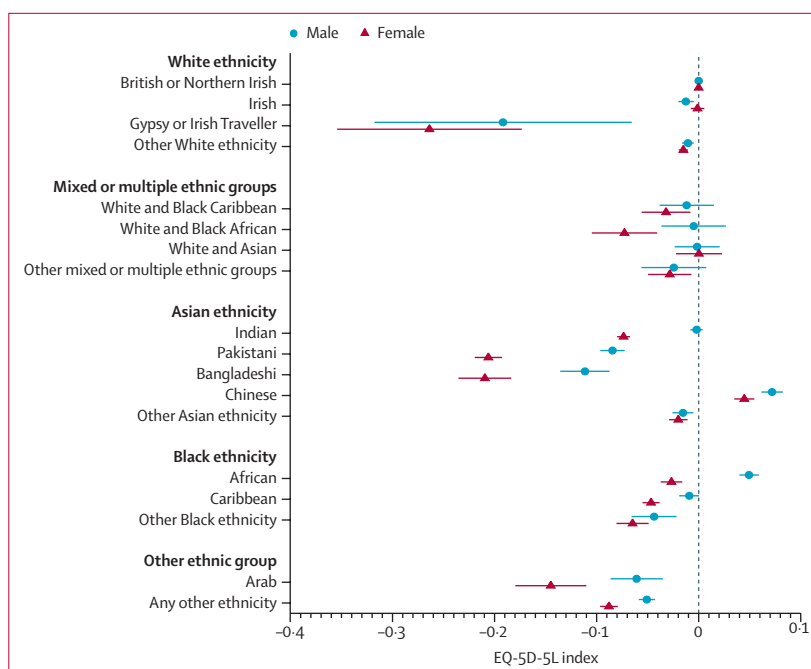
Stata 14.0 was used for all statistical analyses.

### Role of the funding source

The funding source had no role in study design, data collection, data analysis, data interpretation, or writing of the report.

### Results

There were a total of 1416793 GPPS respondents aged 55 years and older, reflecting a relatively high survey



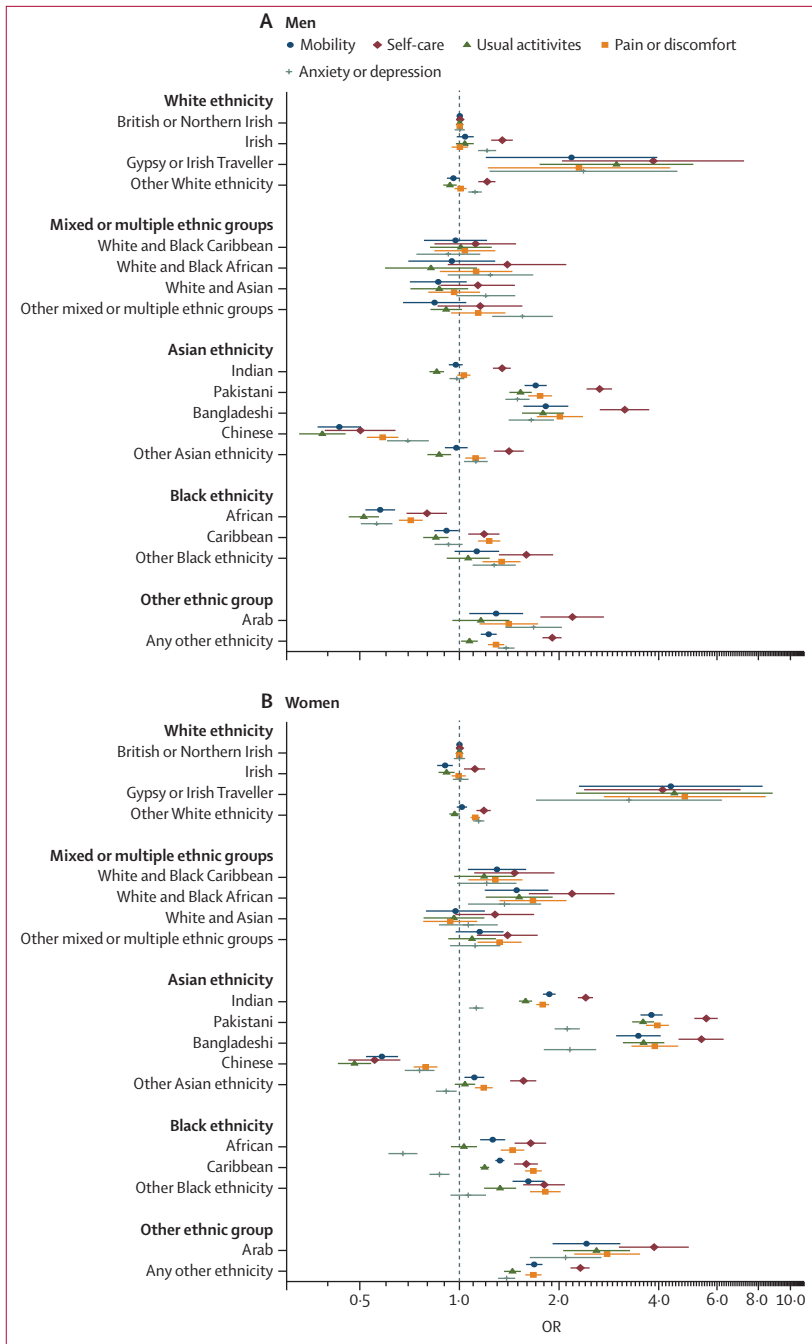
**Figure 1: Association between ethnic group and EQ-5D-5L composite index**

Estimated coefficients with 95% CIs for older men and women in each ethnic group calculated from linear regression models for EQ-5D-5L composite index, adjusted by age group and survey year. Reference groups are White British, age 55–64 years, and 2015 survey year. Lower scores indicate worse health-related quality of life.

response rate (61% of those who were sent the questionnaire responded) among older adults compared with younger age groups in the 2015–17 survey years.<sup>15–17</sup> Of these, 1394361 respondents (645874 [46.3%] men and 748487 [53.7%] women) had complete data on gender and ethnicity and were included in our analysis (table). The most frequently reported minority ethnic groups were other White and Indian, with Gypsy or Irish Traveller reported the least frequently. Missing data were balanced between ethnic groups (appendix p 5).

Unless otherwise stated, all comparisons are to the White British ethnicity reference group.

Among men, belonging to some minority ethnic groups, such as Gypsy or Irish Traveller, Pakistani or Bangladeshi, was associated with worse HRQoL (figure 1; appendix pp 6–7). However, for Indian men and those with mixed or multiple ethnic backgrounds, no differences were detected, and for Chinese and Black African men, there was evidence of better HRQoL. Stratification by age group indicated that this relative health advantage in Black African men occurred only for the youngest age group (55–64 years; appendix p 8). Similarly, even though the age-adjusted estimate indicated no disadvantage for Indian men, this result was driven by a relative HRQoL advantage in the youngest age group, set against HRQoL disadvantages in older groups. By contrast, the increased HRQoL among Chinese men was more consistent across age groups (appendix p 8). Among women, with the exception of Chinese, Irish, and multiple



**Figure 2: Association between ethnic group and individual HRQoL domains in older men (A) and women (B)** Estimated ORs with 95% CIs for each ethnic group calculated from ordinal logistic regression models for each EQ-5D-5L domain, adjusted by age group and survey year (log scale). Reference groups are White British, 55–64 years age group, and 2015 survey year. Higher ORs indicate worse HRQoL. HRQoL=health-related quality of life. OR=odds ratio.

or mixed White and Asian ethnic groups, belonging to any minority ethnic group was associated with worse HRQoL, with magnitudes generally larger than for men (figure 1; appendix pp 7, 9). In both men and women, negative associations between ethnicity and HRQoL were largest among Gypsy or Irish Traveller, Pakistani,

Bangladeshi, and Arab ethnic groups. For these groups, the magnitude of negative association with HRQoL was equivalent to, or exceeded, the difference in HRQoL between the 55–64 years and 75–84 years age groups in the whole sample. Notably, there was heterogeneity in both the direction and magnitude of associations with HRQoL among ethnic groups within some metagroups, particularly Asian and Black metagroups. The results were robust after restricting the sample to the minimal dataset (appendix p 2) and after re-estimating the association between ethnicity and HRQoL with different EQ-5D-5L weightings (appendix p 7).

Considering individual HRQoL domains, the greatest difference for both men and women from most minority ethnic groups compared with those in the White British group was in the self-care domain (figure 2; appendix pp 10–11). Associations between ethnicity and self-care difficulties were largest for Pakistani, Bangladeshi, and Gypsy or Irish Traveller women, with over five times higher odds of reported difficulties across all severity levels. The relative differential between each HRQoL domain varied between ethnic groups and between men and women. For example, the ORs for women in Gypsy or Irish Traveller and any other White ethnic groups were similar across domains, whereas among women in Indian, Pakistani, and Bangladeshi ethnic groups, magnitudes for self-care were more than double those for anxiety or depression. Analysis by domain also revealed inequalities masked by the composite index. For example, Indian men had increased odds of self-care difficulties, despite there being no difference in overall EQ-5D-5L index between the two groups. With the exception of Black African men and Chinese men and women, older adults from minority ethnic groups reported as many or more long-term conditions as those in the White British ethnic group, consistent with the differences in HRQoL (figure 3; appendix p 12). Consistent with results for the primary outcome, inequalities were widest for Gypsy or Irish Traveller, Pakistani, and Bangladeshi women.

Among the five most common long-term conditions, older adults from most minority ethnic groups had increased odds of having some conditions (primarily diabetes and high blood pressure) and decreased odds of having others (primarily back problems and arthritis; appendix pp 13–14). The strongest associations between ethnicity and a specified long-term condition were for diabetes, with significantly greater odds of reporting diabetes in all ethnic groups of the mixed or multiple, Asian, Black, and other ethnic group metagroups. There were no generalised patterns in associations between ethnicity and the odds of other common, but less prevalent long-term conditions for this age group (such as asthma, angina, deafness). However, there were some moderate to large differences for individual ethnic groups and specific conditions (appendix pp 15–16).

There were substantial differences between ethnic groups in terms of experiences of primary care, with similar patterns observed for men and women (figure 4A; appendix p 17). The greatest differences were observed in the Asian metagroup, with up to three times higher odds of reporting poor experiences of primary care. Only older adults in Irish, Black African and other Black ethnic groups had lower odds of reporting poor experiences.

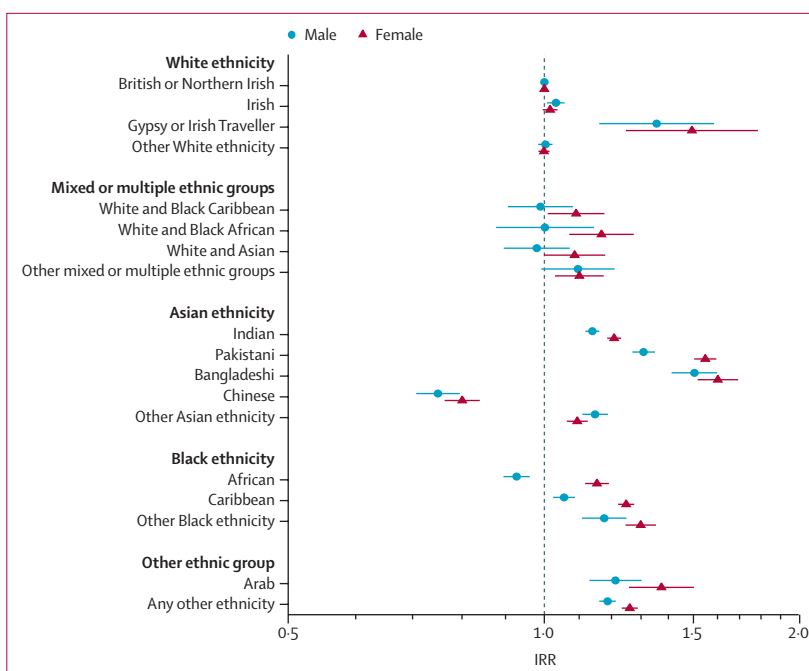
Apart from the Irish ethnic group, being from all minority ethnic groups was associated with increased odds of receiving insufficient support from local services to manage long-term conditions, with similar patterns observed for men and women (figure 4B; appendix p 18). Associations were robust after excluding older adults who reported having no long-term conditions (appendix p 3). Additionally, the odds of older adults in most (16 [94.1%] of 17) minority ethnic groups reporting low self-confidence in managing their own health were higher, with magnitudes generally larger for women than men (figure 4C; appendix p 19).

With the exception of the mixed or multiple White and Asian ethnic group, older adults from all minority ethnic groups had higher odds of living in socially deprived neighbourhoods, with similar patterns observed for men and women (figure 5; appendix p 20). This observation included ethnic groups for which we did not detect significant association with HRQoL, and those with estimated HRQoL advantages. Adding deprivation quintile as a covariate moderately reduced the magnitudes of associations between ethnicity and HRQoL, but significant HRQoL decrements remained for eight of 17 minority ethnic groups (appendix pp 4, 21–22).

## Discussion

Using a national survey, we found substantial inequalities in HRQoL among older adults from most minority ethnic groups in England, with disparities often greater for women than men. We identified self-care as the HRQoL domain for which ethnic inequalities were often widest. By analysing several intermediate outcomes, we also found evidence of ethnic inequalities across proximal and upstream determinants of health, including multimorbidity, health-care experiences, support from local services, and social deprivation.

To our knowledge, this is the first study to document ethnic inequalities in HRQoL in a large, nationally representative English sample. The sample size and reasonably high response rate among older adults<sup>15–17</sup> allowed examination of outcomes for the smallest ethnic groups, which are rarely represented in research. However, even with this large sample, estimates for some ethnic groups were imprecise, and we were not able to disaggregate data by additional demographic factors or geographical region. Although the sampling design and weighting account for ethnic composition and response rates at general practice level, individual response rates by ethnicity are not monitored; therefore, we cannot exclude



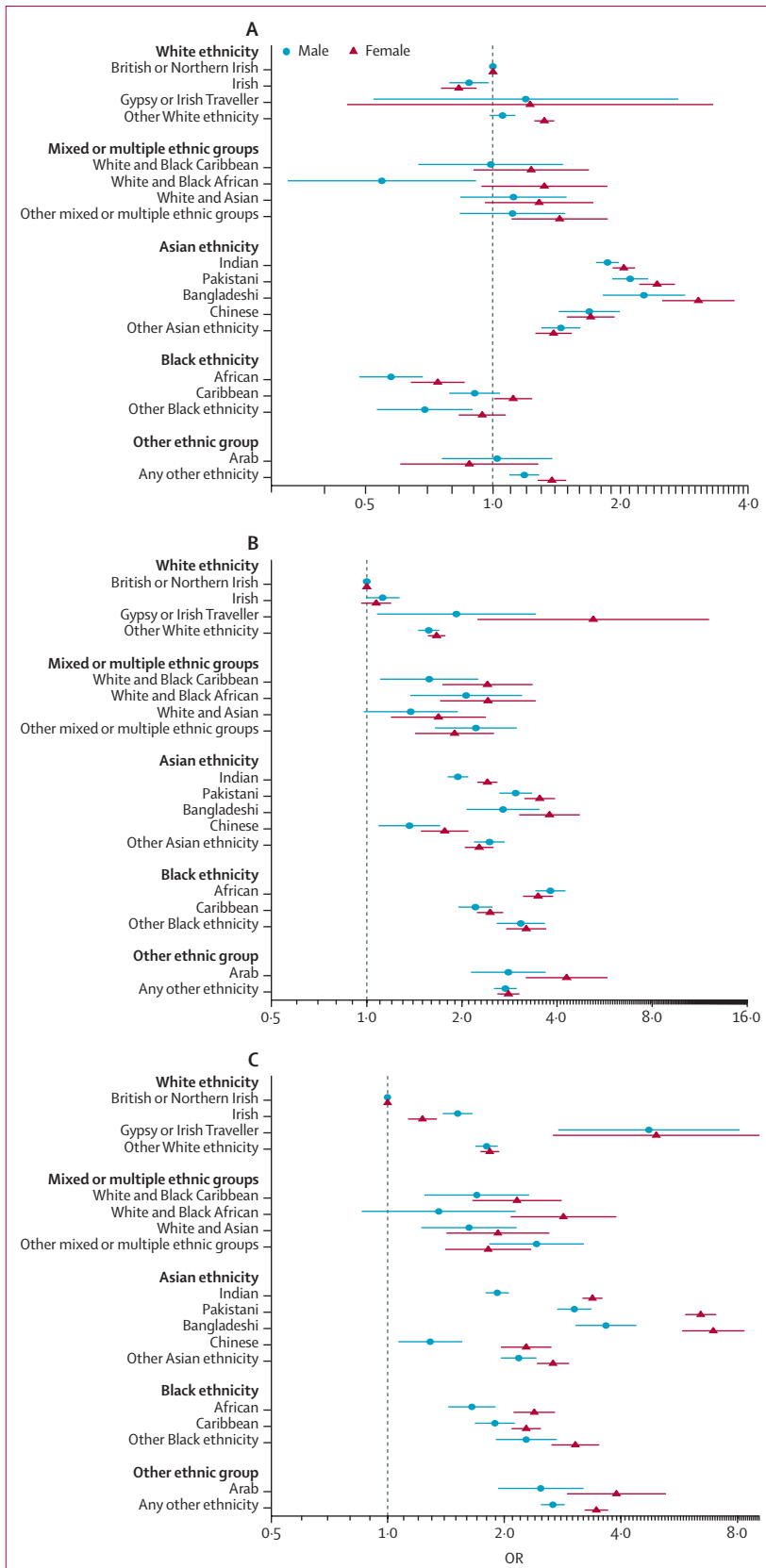
**Figure 3: Association between ethnic group and number of long-term conditions**

Estimated IRRs with 95% CIs for older men and women in each ethnic group calculated from negative binomial regression models for number of long-term conditions per patient, adjusted by age group and survey year (log scale). Reference groups are White British, 55–64 years age group, and 2015 survey year. IRR=incidence rate ratio.

the possibility of some non-response bias. An additional limitation is the likely exclusion of some vulnerable or highly geographically mobile older adults, as the sampling frame comprises those registered with general practices. However, the availability of the survey in many languages and the weighting strategy allow reasonable confidence in the generalisability of findings.

Our results using EQ-5D-5L HRQoL measures are consistent with, and expand on, previous work documenting ethnic inequalities in health with binary definitions of self-rated health.<sup>4,7,8</sup> Although we acknowledge some ceiling effects<sup>23</sup> and reports of variable sensitivity across specific health conditions,<sup>24</sup> the EQ-5D-5L questionnaire is widely used internationally and has been validated across many contexts.<sup>19,24</sup> The validity of the English health-state value set used for EQ-5D-5L index calculation has been the subject of debate,<sup>21,25</sup> but results were robust to three value-set weightings, giving confidence in our conclusions.

A limitation of the GPPS dataset is that age is recorded in 10-year bands; therefore, adjustment for age was imprecise. Given that minority ethnic groups in England have young population structures relative to the White British population,<sup>2</sup> residual confounding by age probably resulted in underestimates of health disadvantages and might have contributed to the apparent HRQoL advantages among Black African men and Chinese men and women. It is also notable that, although stratification by age group indicated that HRQoL advantages were



fairly consistent across age groups for Chinese men, among Chinese women and Black African men, these advantages were limited to younger age groups (55–64 years for Black African men, and 55–64 years and 65–74 years for Chinese women). Similarly, even though the age-adjusted estimate indicated no disadvantage in HRQoL among Indian men, there was evidence of substantial HRQoL decrements for older age groups (both 75–84 years and ≥85 years).

We estimated wide inequalities in HRQoL, with average HRQoL decrements among Gypsy or Irish Traveller, Bangladeshi, Pakistani, and Arab groups similar to, or exceeding, the decrement associated with a two-decade difference in age. This result is consistent with previous estimates based on self-rated health data from older Bangladeshi and Pakistani adults.<sup>4</sup> However, these inequalities had not been documented for Arab and Gypsy or Irish Traveller ethnic groups, as these groups were only disaggregated from broader categorisations in the most recent (2011) English census.<sup>18</sup> These newly evident disadvantages among people in groups not previously analysed, individually highlight the heterogeneity within the former “any other” groups, and serve as a reminder of likely diversity within current groupings. This is especially relevant given that “any other” ethnicity was selected by substantial proportions of GPPS respondents within each metagroup: 34 527 (11.7%) of 294 926 White, 3894 (17.7%) of 21 954 Black, 10 701 (21.1%) of 50 768 Asian, 1753 (34.4%) of 5103 mixed or multiple ethnicity, and 20 385 (94.1%) of 21 670 any other ethnic group respondents. Similarly, differences in both the direction and magnitude of associations with HRQoL between different ethnic groups within each metagroup emphasise the importance of using sample sizes that allow analysis of individual ethnic groups, rather than recoding ethnicity data into broader groups, which could mask inequalities.

Analysis of HRQoL domains indicated that the widest ethnic inequalities often occurred in the self-care domain, which asks individuals about difficulties in washing and dressing. Notably, these ethnic inequalities in self-care difficulties contrasted with the domains most associated with increasing age, namely mobility difficulties and problems with usual activities. There were also differences in the pattern of associations with each domain across different minority ethnic groups and between men and women. Similarly, even though the odds of having some long-term conditions (eg, diabetes) were elevated in most

**Figure 4: Association between ethnic group and poor experience of primary care (A), insufficient support from local services and organisations to manage long-term conditions (B), and low self-confidence in managing own health (C)**  
 Estimated ORs with 95% CIs for older men and women in each ethnic group, calculated from binary logistic regression models for each outcome, adjusted by age group and survey year (log scale). Reference groups are White British, 55–64 years age group, and 2015 survey year. OR=odds ratio.

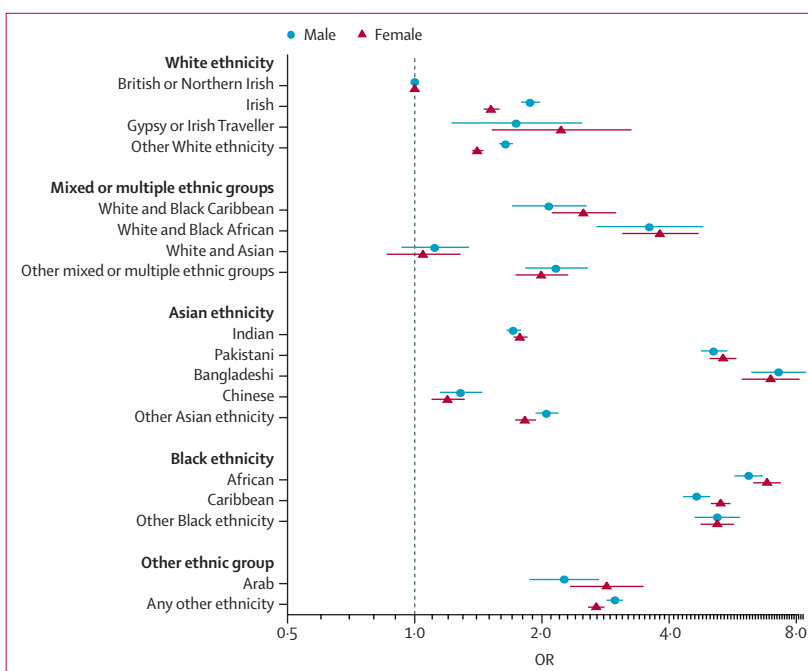


minority ethnic groups compared with the White British group, there were lower odds of having other common long-term conditions (eg, arthritis). These results emphasise the need for nuanced research to understand the specific difficulties that older adults from some minority ethnic groups experience more frequently than other groups, rather than assuming similar age-related health trajectories.

We explored several determinants of health as additional intermediate outcomes. Most proximally, we found that the odds of older adults having one or more long-term conditions (particularly diabetes) and multimorbidity was higher for older men, women, or both from 14 (82.4%) of 17 minority ethnic groups compared with the White British ethnic group, consistent with previous reports.<sup>4,7,8</sup> With appropriate treatment and support, diagnosed long-term conditions need not inevitably lead to declines in HRQoL. However, our analysis indicated that older men, women, or both from nine (52.9%) of 17 minority ethnic groups faced additional disadvantage in terms of poorer experiences of primary care. Previous studies have also documented lower health-care satisfaction<sup>26,27</sup> and worse treatment outcomes<sup>28</sup> in patients from some minority ethnic groups. These studies, along with other reports,<sup>11,29</sup> suggest elements of institutional racism within the NHS, despite its founding on principles of equity.

There is growing attention on the importance of social care, access to additional local services, and empowering self-management to support healthy ageing, with a focus on person-centred approaches.<sup>30</sup> We identified particularly wide ethnic inequalities in perceived support from local services for management of long-term conditions across almost all minority ethnic groups. Potentially as a result, the odds of older adults having low self-confidence in managing their own health were higher in all minority ethnic groups. These factors are rarely discussed in the health inequalities literature, and although our results arise from somewhat crude single-item assessments of service provision and patient self-confidence, our results suggest these factors warrant further research.

In agreement with most research on ethnic inequalities in health, we found strong ethnic patterning of social deprivation, indicating that the social gradient in health is likely to be an upstream driver of observed ethnic inequalities in health.<sup>4,7,8</sup> Although we do not contest the importance of the social gradient in health, it is important to note that in our study the patterns of social deprivation did not map closely with patterns of health disadvantages, suggesting the social gradient alone is unlikely to account for differences in health between ethnic groups. For example, although Bangladeshi and Black African older adults had similarly elevated odds of living in more deprived neighbourhoods, they had different HRQoL outcomes. Area-level social deprivation and individual socioeconomic status are important determinants of health, and intersect with gender, ethnic group, and other



**Figure 5: Association between ethnic group and neighbourhood-level social deprivation**

Estimated ORs with 95% CIs for older men and women in each ethnic group, calculated from ordinal logistic regression models for neighbourhood-level Index of Multiple Deprivation quintile, adjusted by age group and survey year (log scale). Increasing quintile indicates increasing deprivation. Reference groups are White British, 55–64 years age group, and 2015 survey year. OR=odds ratio.

personal characteristics, such as immigrant status or religion, resulting in complex moderation or exacerbation of disadvantage among different subgroups.<sup>3–10</sup> Our results highlight the intersection between ethnicity and gender, with health disparities generally greater for women than men. An improved understanding of the mechanisms that underlie these intersecting layers of disadvantage will be important for informing the development of policy interventions and should be a priority for future research.

The factors explored in our study were limited by the information collected in the GPPS and are not the only relevant determinants of health. Further research is needed to investigate additional determinants, such as quality of housing, occupation and employment histories, religion, or health literacy. Moreover, to infer causation and elucidate the relative importance of exposures throughout the life-course, high-quality longitudinal datasets with sufficient inclusion of older people from minority ethnic groups are needed.<sup>1</sup> In addition, we reaffirm recent calls for new policies to reduce structural inequalities and transform health-care and local service provision to meet the needs of all individuals in the multi-ethnic English population.<sup>4,11,29</sup> Our results suggest that, in addition to national-level policies, improving equity of access to local services for older adults with long-term conditions could be particularly important to support healthy ageing among individuals from minority ethnic groups.

**Contributors**

REW and AJT developed the research questions and analysis plan. REW did the literature review and statistical analysis with input from all authors. All authors accessed and verified the dataset. REW drafted the figures and manuscript text following discussion with all authors, and all authors contributed to the editing of the manuscript. All authors had full access to all data and take final responsibility to submit for publication.

**Declaration of interests**

We declare no competing interests.

**Data sharing**

Individual-level data from GPPS are available from Ipsos MORI via an NHS England sharing agreement. There is a data sharing agreement between the Health Organisation, Policy and Economics, Centre for Primary Care and Health Services Research, University of Manchester and NHS England. Further information is available at <https://gp-patient.co.uk/contact> or by contacting [gppatientsurvey@ipsos.com](mailto:gppatientsurvey@ipsos.com).

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