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RESEARCH PAPER

Ethnic and socioeconomic inequalities in health and social care utilisation amongst people with dementia: a population-based study

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Abstract

Background: People with dementia face health and social care access and use inequalities. Ethnicity and area-level deprivation may drive of these inequalities; however the role of ethnic density remains unexplored.
Objective: Explore relationships between ethnicity and health and social care resource use amongst people with dementia in North-West London.
Methods: We conducted a retrospective observational cohort study of diagnosed dementia patients between 1.4.2015 and 1.4.2025 (N = 30.704). Ethnic density was calculated as the percentage of the Middle Layer Super Output Area (SOA) population self-identifying with the same ethnic group. Regression models, clustered by Lower Layer SOA, examined relationships between ethnicity and primary care, outpatient, inpatient, emergency and social care use including ethnic density as a moderator, adjusting for sociodemographics, deprivation, comorbidities and diagnosis year.
Results: Compared to White groups, Black [incidence rate ratio (IRR) 1.04, 95% CI 1.01–1.08] and Mixed (IRR 1.08, 95%CI 1.01–1.15) groups had more General Practice (GP) interactions. Chinese groups had fewer GP interactions (IRR 0.94, 95% CI 0.90–0.97), inpatient spells (IRR 0.86, 95% CI 0.79–0.94), outpatient appointments (IRR 0.89, 95% CI 0.83–0.96) and A&E visits (IRR 0.89, 95% CI 0.82, 0.97). Social care rates were higher in Black groups (IRR 1.11, 95%CI 1.02, 1.20). Higher ethnic density was associated with fewer GP interactions amongst Black groups (IRR 0.76, 95% CI 0.65–0.89).
Conclusions: Primary care use was relatively high in low ethnic density areas for Black groups, perhaps reflecting greater needs. Greater health and social care integration could reduce inequalities amongst minority ethnic communities.

Keywords: dementia; ethnic inequalities; healthcare; social care; older people

Key points

- We explore whether ethnic density moderates ethnicity and health and social care use amongst people with dementia.
- Amongst Black ethnic groups, GP interaction rates were highest in low ethnic density areas, consistent with greater unmet need.
- Amongst South Asian patients, high ethnic density was linked to more GP interactions, maybe due to greater cultural competency.

- Minority ethnic communities are not homogeneous and place-based strategies should be tailored to individual's needs.
- Neighbourhood care models that bring secondary care expertise into primary care settings could improve access and use.

Introduction

Dementia prevalence is rising worldwide. In England, recorded diagnoses increased from 427 176 in 2022 to 498 926 in 2025, representing only two-thirds of those with dementia. Dementia is the UK's leading cause of death [1], with UK annual costs expected to reach £90 billion by 2040 [2].

The 10 Year Health Plan for England [3] proposes proactive management of dementia symptoms and comorbidities may prevent crises requiring unplanned, emergency care, as well as being more acceptable and cost-effective [4, 5]. If equitably implemented, this approach could increase care quality and reduce geographical care inequalities, as people with dementia who experience greater morbidity and mortality, who would benefit most, are over-represented in deprived areas [6].

Dementia care is inequitable. Some minority ethnic groups receive less preventive care [7] can be reluctant to use planned health [8] and perceive social care services as culturally incompetent [9]. These patterns may explain greater use of unplanned care amongst ethnic minority groups [10].

Understanding how geographical inequalities intersect with ethnicity and culture is important for equitable community-based preventative care. Amongst people with severe mental illness, higher ethnic density (the concentration of similar ethnic groups within an area) has been associated with lower mortality, potentially due to increased social support, cohesion and reduced exposure to racism [11].

Ethnic density may also shape dementia care through community support, leading to lower formal care use, or more culturally competent services that are more acceptable and accessible. We explored how relationships between ethnicity and health and social care resource use varied by area-level ethnic density amongst people with dementia in Northwest London.

Method

Study design

We conducted a retrospective observational cohort study using demographic, health and social care data for people diagnosed with dementia living in Northwest London between 01.04.2015 and 01.04.2025.

Data source

The Discover-NOW London TRE (Trusted Research Environment) is an anonymised linked dataset of over 2.8 million primary care registered individuals, linking social, community primary and secondary care service data [12]. Discover-NOW have Health Research Authority approvals from the Northwest London Data Access Committee (REC reference: 18/WM/0323; IRAS project ID: 253449). Following a Data Access Request (approval number 337) data was analysed within the Discover-NOW TRE between 01.11.2025 and 12.10.2026 by GM, RH and LT.

Study population

We included patients aged 40 and over, with a dementia diagnosis recorded between 01.04.2015 and 01.04.2025, with minimum 6 months of follow-up data after dementia diagnosis. We excluded patients with >15 long term conditions (as implausible data).

Outcomes

We recorded (a) primary care interaction days; (b) acute hospital inpatient spells; (c) acute hospital outpatient attendances (not including mental health secondary care appointments held in a different dataset); (d) emergency department attendances; and (e) social care packages (identified from a locally agreed dataset relating to patients registered with a Northwest London General Practice (GP)); restricted to people not living in residential care. Appendix S1 in the Supplementary Data section provides further details for each outcome.

Exposure

Our exposure was individual ethnicity, recorded in primary care records using self-reported UK Census categories. Ethnicity was classified in seventeen categories, further grouped into seven categories: Black (African, Caribbean, Any other Black background); South Asian (Bangladeshi, Indian, Pakistani, any other Asian background); Chinese; White (White UK, Any other White background, Irish), and mixed/multiple (Any other mixed background, White and Asian, White and Black African, White and Black Caribbean); any other ethnic background, and unknown (missing ethnicity).

Area-level covariates

Ethnic density was calculated at the Middle Layer Super Output Area (MSOA) level, following an established approach [13]. The average population of an MSOA in London is 8346 [14]. Using data from the 2021 England and Wales Census [15], ethnic density was defined as the percentage of residents of an MSOA from a given ethnic group.

Individuals were assigned an ethnic density value corresponding to their own ethnic group within their MSOA of residence. Descriptive analyses used ethnic density based on the 17 census categories. For regression analyses, we categorised ethnic density in three groups (low, medium and high) using equal-width cut-points derived from the observed

range within each ethnic group. This within-group approach was adopted to account for the variation in ethnic density distributions across groups.

Socioeconomic deprivation was measured using the English Index of Multiple Deprivation (IMD). The IMD summarises individual and community characteristics within Lower layer Super Output Areas (LSOAs) of ~1500 people. Based on the IMD, LSOAs were divided into five quintiles, from the least (quintile one) to the most deprived (quintile five) [16].

Individual level covariates

Demographic covariates included: age at dementia diagnosis; sex (male/female); care home residence (yes/no) and household structure (living alone/not living alone; categorised by the research team) recorded in primary care records.

Clinical covariates included comorbid long-term conditions count, derived from the 15 Quality Outcomes Framework chronic disease indicators (excluding dementia) recorded in the patient indicator table, which is refreshed yearly [17].

Statistical analysis

Annual observation periods from date of dementia diagnosis, with follow-up censored at the date of death or last recorded healthcare contact were calculated. Person-years of observations were calculated, and outcome counts annualised and aggregated at the individual level for analysis. Demographic characteristics and annual counts of health and social care use are summarised by ethnic groups.

Missing ethnicity, ethnic density and IMD were retained as an 'Unknown'. Other covariates were analysed using complete-case analysis; listwise deletion removed care home residence (27.9% missing) and household structure (28.3% missing). The missingness mechanism could not be determined, so we did not impute [18]. Appendix S7 (Supplementary Table S5) reports the sensitivity analysis retaining all individuals, excluding these two covariates.

Regression models were compared using AIC (Akaike Information Criteria) and BIC (Bayesian Information Criteria). Negative binomial regressions were selected for GP interaction days due to overdispersion. Zero-inflated negative binomial models were used for inpatient spells, outpatient appointments and A&E visits because many individuals had no events. A zero-inflated Poisson model best fitted social care package use.

All models were clustered at the LSOA level and included log person-years as an offset. Models were: crude (ethnic group only); model 1 (adjusted for age at diagnosis, gender, care home residence, household structure, long term condition count and diagnosis year; model 2 (additionally adjusted for ethnic density and IMD); and model 3 (ethnicity by ethnic density interaction). Given sample size limitations for interaction analyses [19], only GP interaction day results are reported in the main analysis. Appendix S6 (Supplementary Table S4) reports model 3 interactions for all other outcomes, expect social care package, where sparse combinations produced unstable estimates. Individuals with unknown ethnic density were excluded from the interaction analyses. Results are incidence rate ratios (IRRs) with 95% confidence intervals. All analyses used R (4.4.1); $P < .05$ indicated statistical significance.

Results

Table 1 displays the demographic characteristics of the full cohort of people with dementia (n = 30 704). Appendix S3 (Supplementary Table S1) describes ethnic densities across MSOAs. Median ethnic density varied by group, ranging from 34.0% (IQR (Interquartile range) 23.8–43.6) for people from White British backgrounds, indicating around a third of MSOA populations were White British; and for people of mixed White and Black African ethnicity, a median ethnic density of 0.7% (IQR 0.6–1.1), meaning this group lived in areas where less than one in a hundred people were from this ethnic group.

Appendix S2 (Supplementary Fig. S1) presents a flow diagram of the sample sizes and data trimming for each outcome. A total of 19 182 individuals were included in the analysis of GP interactions, 16 371 individuals in the analysis of outpatient appointments, 10 978 individuals in the social care packages analysis, 16 068 individuals in the analysis of inpatient spells and 16 074 individuals in the analysis of A&E visits.

Health and social care use

The health and service use outcome mean rates per person/year, by ethnic group are presented in Table 2. Table 3 shows the crude and adjusted model for each outcome (see Appendix S4, Supplementary Table S2 for full models) the interaction model is reported in Table 4 (see Appendix S5, Supplementary Table S3 for full model). Appendixes S8–S12 presents forest plots of each fully adjusted model.

GP interaction days

All individuals had GP interaction days during the study follow-up period; the median rate of interaction days per person/year was 25.6, (IQR, 17.2–38.4). Analyses included a total of 65 536.5 person years. Participants were followed up for a mean of 3.9 (Standard Deviation, SD = 2.3) years.

Compared to people of White ethnicity (mean rate: 33.3, SD = 31.0), people with dementia from Black and Mixed/-Multiple ethnic groups had significantly higher mean rates of GP interaction days (mean rate: 37.1, SD = 45.8), whilst those from Chinese/Other Asian ethnic groups had significantly lower rates (mean rate: 30.3,SD = 26.0). In adjusted analyses, people from Black [IRR (Incident Rate Ratios): 1.0, 95% CI: 1.0–1.1] and Mixed/multiple ethnic groups (IRR: 1.1, 95% CI 1.0–1.2) had GP interaction days more frequently, and those from Chinese/other Asian ethnic groups less frequently (IRR: 0.9, 95% CI 0.9–1.0), compared to people of White ethnicity.

Table 1. Characteristics of included cohort of people with dementia.

	N (%)/mean (standard deviation)
Gender	
Female	17 934 (58.41%)
Male	12 770 (41.59%)
Ethnicity (Detailed categories)	
White British	11 070 (36.05%)
Any other White background	4520 (14.72%)
White Irish	1528 (4.98%)
White and Asian	93 (0.30%)
White and Black African	81 (0.26%)
White and Black Caribbean	214 (0.70%)
Any other mixed background	173 (0.56%)
Chinese	166 (0.54%)
Pakistani	659 (2.15%)
Any other Asian background	1557 (5.07%)
African	798 (2.60%)
Caribbean	1612 (5.25%)
Any other Black background	417 (1.36%)
Any other ethnic group	956 (3.11%)
Missing	2915 (9.49%)
Care home residence	
No	12 736 (41.48%)
Yes	9076 (29.56%)
Missing	8892 (28.96%)
Household structure	
Living alone	5795 (18.87%)
Not living alone	15 909 (51.81%)
Missing	9000 (29.31%)
Died during follow-up	
No	14 689 (47.84%)
Yes	16 015 (52.16%)
IMD Quintile	
1	4447 (14.48%)
2	11 641 (37.91%)
3	7123 (23.20%)
4	4636 (15.10%)
5	2675 (8.71%)
Missing	182 (0.59%)
Number of long term conditions	5.18 (2.33)
Age at diagnosis (years)	81.05 (9.78)
Age at death (years)	86.17 (7.73)

Data are n (%) for categorical variables and mean (SD) for continuous variables.
IMD = index of multiple deprivation.

Ethnic density moderated the relationship between ethnic category and GP interaction days. Rates of GP interaction days were highest amongst Black people from areas of lowest ethnic density compared to those in more ethnically dense areas. Whilst South Asian ethnic groups had similar rates of GP interactions days to White ethnic groups, rates tended to be higher than White British groups in areas with high ethnic density (though this difference was not statistically significant).

Outpatient appointments

A total of 13.4% (n = 2195) had no outpatient appointments recorded during the study period. The median rate of outpatient appointments per person/year was 2.7 (IQR = 1.0–5.5). The mean number of years of follow-up was 3.6 (SD = 2.3).

All minority ethnic groups had lower rates of outpatient attendances than White ethnic groups, after adjusting for covariates. Rates for those of Chinese and other Asian ethnicity, and other ethnicity were 10.0% (IRR: 0.9, 95% CI: 0.8–1.0) and 9.1% (IRR: 0.9, 95% CI: 0.8–1.00) lower, respectively, than the White reference group in adjusted analyses.

Community social care packages

A total of 68.00% (7470) did not have any social care packages during the study period. The median rate of local authority community social care packages per person year was 0 (IQR = 0–0.6). The mean number of years of follow-up was 3.7 (SD = 2.0). All minority ethnic groups, apart from South Asian ethnic groups, had higher rates of community social care packages than White ethnic groups after adjusting for covariates. Rates for those from Black ethnic groups were 11% higher than White ethnic groups (IRR: 1.1, 95% CI 1.0, 1.2) in adjusted analysis.

Inpatient care

A total of 30% (n = 4829) had no inpatient spells during the study period. The median rate of inpatient spells per person/year was 0.7 (IQR = 0.0–1.6). The mean number of years of follow-up was 3.6 (SD = 2.2). Rates of inpatient admission were 16% lower amongst people from Chinese/other Asian ethnic groups (IRR: 0.8, 95% CI: 0.8–0.9), compared to White ethnic groups in the adjusted model.

A&E visits

A total of 26.5% of individuals (n = 4254) had no A&E visits during the study period. The median rate of visits per person/year was 0.80 (IQR = 0.0–1.8). The mean number of years of follow-up was 3.7 (SD = 2.2). Relative to White ethnic groups, those of Chinese/other Asian (IRR: 0.9, 95% CI: 0.8–1.0) and South Asian ethnicities (IRR: 0.9, 95% CI: 0.8–0.9) had 13% lower rates of attendances in adjusted analyses.

Exploratory and sensitivity analyses

Exploratory analyses examining the interaction between ethnic group and ethnic density for outpatient appointments, inpatient spells and A&E visits found little evidence of interactions. Those from Mixed/Multiple ethnic groups had higher rates of A&E visits in areas of medium ethnic density (Appendix S6, Supplementary Table S4).

Sensitivity analyses repeating models 1 and 2 retaining all cases, excluding care home status and household group identified minimal differences (Appendix S7, Supplementary Table S5).

Table 2. Main health and social care use outcome average rates per person year.

(a) by ethnic group (n, mean rate, SD)

	White	Mixed/Multiple	Black	South Asian	Chinese/Other Asian	Other	Missing
GP Interactions	11 035, 33.25 (31.04)	353, 37.11 (45.84)	1820, 36.22 (45.46)	2633, 31.93 (29.96)	990, 30.34 (25.98)	592, 34.78 (38.20)	1759, 31.36 (30.25)
Inpatient Spells	9195, 1.21 (1.88)	293, 1.23 (1.70)	1522, 1.30 (2.11)	2209, 1.26 (2.05)	807, 1.08 (1.71)	490, 1.17 (1.73)	1535, 1.12 (1.72)
Outpatient Appointments	9294, 4.05 (5.40)	304, 4.25 (4.42)	1570, 4.23 (4.90)	2327, 4.69 (5.00)	849, 4.14 (4.52)	505, 4.36 (5.02)	1522, 3.60 (4.62)
A&E Visits	9261, 1.37 (1.90)	288, 1.58 (2.39)	1503, 1.32 (1.72)	2201, 1.26 (1.72)	810, 1.20 (1.54)	479, 1.37 (1.90)	1532, 1.27 (0.81)
Social Care Packages	5721, 0.30 (0.52)	204, 0.34 (0.55)	1133, 0.43 (0.56)	1875, 0.27 (0.48)	682, 0.29 (0.48)	392, 0.32, (0.51)	971, 0.29 (0.50)

(b) By ethnic density category (n, mean rate, SD)

	Low ethnic density	Medium ethnic density	High ethnic density	Missing
GP Interactions	8439, 32.86 (30.63)	7862, 33.79 (32.31)	1034, 33.52 (35.40)	1847, 31.76 (30.63)
Inpatient Spells	7115, 1.26 (2.12)	6487, 1.19 (1.68)	849, 1.17 (1.81)	1600, 1.12 (1.71)
Outpatient appointments	7205, 4.13 (5.24)	6694, 4.24 (5.10)	874, 4.23 (5.25)	1598, 3.69 (4.98)
A&E Visits	7163, 1.37 (1.89)	6468, 1.33 (1.86)	849, 1.24 (1.73)	1594, 1.27 (1.81)
Social Care Packages	4551, 0.32 (0.52)	4750, 0.30 (0.52)	656, 0.28 (0.49)	1021, 0.29 (0.51)

Table 3. Incident rate ratios (IRR) and 95% confidence intervals for relationships of health and social care use with ethnicity (crude model) and additionally controlling for covariates (model 1) and additionally controlling for area ethnic density and deprivation (model 2); $P < .05$ indicated in bold.

Model	Ethnic group	GP Interactions	Inpatient Spells	Outpatient Appointments	A&E Visits	Social Care Packages
Crude	Black	**1.04 (1.00, 1.07)**	1.04 (0.96, 1.12)	1.00 (0.95, 1.06)	0.95 (0.89, 1.02)	**1.11 (1.02, 1.19)**
	Chinese/Other Asian	**0.94 (0.90, 0.98)**	**0.86 (0.79, 0.95)**	0.98 (0.91, 1.05)	**0.87 (0.79, 0.95)**	1.05 (0.94, 1.17)
	Mixed/Multiple	**1.10 (1.02, 1.17)**	1.07 (0.92, 1.23)	1.04 (0.93, 1.17)	1.12 (0.97, 1.28)	1.03 (0.84, 1.25)
	Other	1.01 (0.95, 1.06)	0.98 (0.87, 1.11)	1.03 (0.94, 1.13)	0.96 (0.86, 1.08)	1.02 (0.90, 1.16)
	South Asian	1.01 (0.98, 1.04)	1.03 (0.97, 1.09)	**1.10 (1.04, 1.15)**	**0.92 (0.86, 0.97)**	0.97 (0.89, 1.32)
1	Black	**1.05 (1.01, 1.09)**	1.04 (0.98, 1.11)	0.97 (0.92, 1.02)	0.98 (0.92, 1.04)	**1.13 (1.04, 1.22)**
	Chinese/Other Asian	**0.94 (0.90, 0.98)**	**0.86 (0.79, 0.94)**	**0.89 (0.83, 0.96)**	**0.89 (0.82, 0.97)**	1.11 (0.99, 1.23)
	Mixed/Multiple	**1.08 (1.02, 1.15)**	1.02 (0.95, 1.09)	0.99 (0.88, 1.11)	1.08 (0.95, 1.23)	1.08 (0.89, 1.32)
	Other	0.99 (0.95, 1.04)	**0.89 (0.8, 1.0)**	**0.88 (0.81, 0.97)**	0.91 (0.82, 1.01)	1.10 (0.96, 1.25)
	South Asian	0.99 (0.96, 1.01)	0.95 (0.89,1.01)	0.96 (0.92, 1.01)	**0.88 (0.83, 0.94)**	1.01 (0.93, 1.09)
2	Black	**1.04 (1.01, 1.08)**	1.01 (0.95, 1.08)	0.97 (0.92, 1.03)	0.95 (0.89, 1.01)	**1.11 (1.02, 1.20)**
	Chinese/Other Asian	**0.94 (0.90, 0.97)**	**0.84 (0.77, 0.92)**	**0.9 (0.83, 0.96)**	**0.87 (0.8, 0.95)**	1.10 (0.99, 1.23)
	Mixed/Multiple	**1.08 (1.01, 1.15)**	0.95 (0.83, 1.1)	0.99 (0.89, 1.11)	1.07 (0.94, 1.22)	1.05 (0.86, 1.28)
	Other	0.99 (0.94, 1.04)	0.87 (0.78, 0.97)	**0.89 (0.81, 0.97)**	0.91 (0.82, 1.01)	1.08 (0.95, 1.24)
	South Asian	0.98 (0.95, 1.01)	0.94 (0.89, 1.00)	0.96 (0.92, 1.01)	**0.87 (0.83, 0.93)**	0.98 (0.91, 1.07)

Note. White ethnicity is the reference group. Models 1 and 2 were controlled for age at diagnosis, gender, care home residence[a], household structure, long term condition count, diagnosis year, clustered by LSOA and included total person years as the offset. Results are expressed as incidence rate ratios (IRRs) with 95% confidence intervals. [a]The social care packages analysis did not include care home residence due to only including those not in a care home.

Discussion

This is the first study to explore how ethnic density influences relationships between ethnicity and service use. People with dementia from Black and Mixed/multiple ethnic groups interacted with GPs more frequently, whilst Chinese/other Asian ethnic groups had lower rates of GP interactions. A&E visits were also lower amongst Chinese/other and South Asian. Patterns varied by ethnic density. Amongst Black ethnic groups, GP interaction day rates were higher in areas of low ethnic density, whereas amongst South Asian ethnic groups, GP interaction day rates tended to be higher in areas of greater ethnic density.

Amongst Black ethnic groups, rates of GP interaction days were not mirrored in secondary care usage, suggesting a relatively high rate of consultation for non- specialist conditions, or an inequity in specialist referral rates. Lower ethnic density was associated with more frequent GP interaction days. Previous research has linked lower ethnic density with worse health outcomes, potentially due to exposure to racism and low community support [11]. Our findings may be explained by an excess of primary care use in this group driven by social

Table 4. Incident rate ratios (IRR) and 95% confidence intervals for relationships of GP interactions with ethnicity (model 2) additionally adjusting for ethnic density by ethnicity interactions (model 3).

Model	Effects		GP Interactions
3	Main	Black	**1.07 (1.03, 1.12)**
		Chinese/Other Asian	0.96 (0.90, 1.00)
		Mixed/Multiple	1.04 (0.95, 1.13)
		Other	1.00 (0.93, 1.08)
		South Asian	0.96 (0.93, 1.00)
	Interaction ethnic density	Black × MED	**0.92 (0.85, 0.99)**
		Chinese × MED	0.98 (0.90, 1.07)
		Mixed/multiple × MED	1.05 (0.92, 1.20)
		Other × MED	0.98 (0.88, 1.10)
		South Asian × MED	1.04 (0.97, 1.11)
		Black × HED	**0.76 (0.65, 0.89)**
		Chinese/other × HED	0.95 (0.77, 1.19)
		Mixed/multiple × HED	1.23 (0.96, 1.57)
		Other × HED	0.97 (0.81, 1.16)
		South Asian × HED	1.14 (0.97, 1.34)

Note. White ethnicity and low ethnic density are reference groups; MED = Medium ethnic density; HED = High ethnic density. Values in bold inidicate statistical significance ($P < .05$)

needs. The roll out of social prescribing has achieved success in targeting under-served, including minoritised groups [20]; though inequities in referral for secondary care could explain our findings.

Across all healthcare, low rates of service use by Asian ethnic groups support findings from previous studies [8, 9]. Reasons for low use of secondary care amongst minority ethnic groups include unfamiliarity with services, economic barriers, inaccessible booking systems to non-English speakers; requiring a carer; and dementia associated stigma [21]. Interestingly, the low rates of primary care use were attenuated in areas of high ethnic density in South Asian ethnic groups. In such areas, services may be more likely to be culturally competent such as having access to GPs from the same ethnic group and community support to facilitate appointments. Neighbourhood care models enabling access to secondary care in primary care settings could reduce barriers accessing secondary care, which may impact people with dementia from minority ethnic groups.

To our knowledge, no study has explored how social care service use might vary between ethnic groups amongst people with dementia. Those from Black ethnic groups had higher rates of community social care packages. However, over two-thirds of people with a dementia diagnosis did not receive any social care. This reflects findings from previous studies indicating ethnic minority populations experience barriers to accessing social care [22]. Social care workers are well placed to implement integrated dementia care models and promote health and wellbeing, though effective multidisciplinary team working is limited by poor access to training, supervision and resource constraints [23, 24].

People with dementia from underserved groups experience more comorbidities [6] and lower access to care, but in our analyses did not appear to access more unplanned care. Perhaps the lower access to services experienced by people with dementia, compared to those without, to planned and unplanned care is the critical inequity [7]. Access to planned care may manifest in negative outcomes other than unplanned care, with greater burden falling on informal care networks.

Limitations

The Discover-NOW dataset is smaller than national datasets such as the Clinical Practice Research Datalink but provides richer data linkage, is more ethnically diverse and remains broadly comparable to the UK population in terms of age, gender distribution, and chronic disease prevalence [25]. Nonetheless, the dataset only includes people from Northwest London, findings may not be generalisable nationally, or internationally.

Missing data are a key limitation. Ethnicity data may not be missing at random; individuals concerned about discrimination may be less likely to disclose it. Our sample was also limited to individuals with a recorded dementia diagnosis and as people from minority ethnic groups are likely have higher rates of undiagnosed dementia [26], this may bias our findings. Those with a formal dementia diagnosis may have greater ability to access social care, especially if they have lower incomes; thus inequalities in social care access for minority groups may have been underestimated.

Reason for GP visit was not recorded meaning we could not count the number of GP interactions per day and instead limited the analysis counting the number of days of GP interactions. We could not explore the influence of age categorically (e.g. early vs late onset) due to a lack of detail of the specific dementia diagnosis received. Future research should explore this, as age at diagnosis is an important potential confounder.

IMD has been criticised as individuals may not share the deprivation level of the area in which they live [27]. Ethnic categories encompass heterogeneous populations, with diverse migration histories, cultural and linguistic backgrounds and socioeconomic statuses, so only approximate individual-level exposure [28]. Models were clustered at LSOA level alone, however patients also cluster in MSOAs and within GP practices which may mean standard errors were underestimated with narrow confidence intervals.

Differential rates of stage or severity of dementia at time of diagnosis across ethnic groups could contribute to the observed associations and findings should be interpreted cautiously. Event rates may have varied across the follow-up, related to the progressive nature of dementia, and this may have affected estimated associations. We do not know whether service use was related to dementia diagnosis per se; in future analyses, we would compare people living in similar contexts without a dementia diagnosis, or compare use with time periods prior to diagnosis. Service use was analysed independently; we acknowledge a single composite measure

of health and social care could have provided a total resource use summary and reporting separate models increases the risk of chance findings.

Conclusions

Minority ethnic groups used less secondary health care than White ethnic groups highlighting the potential value of greater health and social care integration in reducing inequalities in access to appropriate services. People from Black and Mixed ethnic groups interacted with GPs more, whilst those from Chinese and other Asian groups have fewer GP interactions. In people from Black ethnicity, those in areas of lower ethnic density had more GP interactions, whilst in South Asian ethnic groups, living in a higher ethnic density area predicted a higher GP interaction rate. These patterns may reflect the dual influence of community: supporting better health outcomes and help-seeking behaviours.

Supplementary Data: Supplementary data is available at *Age and Ageing* online.

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Data Availability: The data used in this paper cannot be shared directly. Discover-NOW welcome applications to use their data on a project-specific basis, with data access subject to their approvals processes and relevant data sharing agreements, described on their respective websites.

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