

Disparities in the monitoring and management of people with Type 2 Diabetes

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Aim

People with lower socioeconomic status (SES) and ethnic minority groups have worse glycaemic control and higher incidence of type 2 diabetes related complications. We compared the monitoring of:

- glycaemic control (HbA1c)
- renal function using estimated glomerular filtration rate (eGFR)
- and blood pressure (BP)

across SES and ethnic groups to identify any management disparities which may be contributing to these incongruent outcomes.

Background

Racial and socioeconomic factors have a substantial influence on the development of diabetes, the progression of diabetes, and development of complications. It is currently unclear if disparities in healthcare provision are a contributing factor to these differences.

Disparities in health care have previously been identified in other areas of chronic disease with differences in monitoring rates between ethnic groups. Despite the introduction of the Quality and Outcomes Framework (QOF) in UK primary care, ethnic minorities are more likely to have renal function monitoring¹, and those of Black ethnicity are less likely to achieve good BP control.²

Using more recent routine primary care data, we analysed monitoring rates for HbA1c, eGFR, and BP, comparing across SES and ethnic groups to explore whether disparities are still present in a system that is free at the point of care.

Methods

A cohort of people with type 2 diabetes (N=60,327) was identified from the University of Surrey-Lilly Real World Evidence database³, using routinely collected primary care data. The number of people monitored during a 12 month period (2015) was analysed. The impact of SES and ethnicity on propensity to monitor was investigated using logistic regression adjusting for potential confounders (age, gender, body mass index, HbA1c, duration of diabetes, number of previous therapies, and eGFR).

SES was measured using index of multiple deprivation (IMD) score, which was aggregated into quintiles (Quintile 1 = most deprived, Quintile 5 = least deprived) in accordance with those of the national population.

Results

The majority of people had HbA1c monitoring (52,278; 86.7%), an eGFR result (52,999; 87.9%), and BP measurement (55,212; 91.5%). Ethnic group was identifiable in the majority (51,747; 85.8%) of people (White: 42,284; Asian: 5,706; Black: 2,648; Mixed: 552; Other: 557), and SES was identifiable in almost the entire cohort (59,830; 99.2%) (Table 1). After adjusting for confounders there were no differences by SES or ethnicity for HbA1c, eGFR, and BP monitoring (Table 2); other than Asian people were more likely to have HbA1c monitoring (OR 1.20 95% CI 1.08-1.33; p<0.001).

Characteristic	n (%) or mean (SD)
Ethnicity recorded	51747 (85.8)
White	42284 (81.7)
Asian	5706 (11.0)
Black	2648 (5.1)
Mixed	552 (1.1)
Other	557 (1.1)
IMD recorded	59830 (99.2)
Quintile 1 (most deprived)	14249 (23.8)
Quintile 2	13248 (22.1)
Quintile 3	9983 (16.7)
Quintile 4	10366 (17.3)
Quintile 5	11984 (20.0)
HbA1c measured in 2015	52278 (86.7)
HbA1c mmol/mol	55.5 (16.3)
Blood pressure measured in 2015	55212 (91.5)
SBP (mmHg)	132.0 (14.7)
DBP (mmHg)	75.0 (9.6)
eGFR measured in 2015	52999 (87.9)
eGFR mL/min	69.8 (18.5)

Table 1. Data characteristics table. The characteristics of all adults with type 2 diabetes (n=60,327) by ethnicity, socioeconomic status, glycaemic control, blood pressure, and renal function. SD = standard deviation. SBP = systolic blood pressure, DBP = diastolic blood pressure

Discussion

The majority of people with type 2 diabetes have annual HbA1c, eGFR, and BP monitoring. In contrast to the previous research, there were no substantial disparities in the monitoring of patients between major ethnic or SES groups. The reduced propensity to monitor HbA1c and BP in those in the "other" ethnic category warrants further investigation.

These findings suggest benefits of a health care system that is free at the point of delivery, and suggests that in the following years since QOF was implemented, primary care practitioners are providing disease monitoring in line with quality targets.

Conclusion

No substantial disparities were observed in HbA1c, eGFR, or BP monitoring across people of different SES or the major ethnicity groups. Further analysis is needed to assess the "other" ethnicity group. This reassuring finding demonstrates that disparities in monitoring and management of diabetes are avoidable.

Key findings

- The majority of people had an HbA1c, eGFR, and BP measurement. Similarly, ethnic group and SES was identifiable in most patients.
- After adjusting for confounding variables there were no differences by SES or ethnicity for HbA1c, eGFR, and BP monitoring, other than greater likelihood of HbA1c monitoring in Asian people.
- Disparities in monitoring and management of diabetes are avoidable.

References

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Ethnic group	HbA1c monitoring		BP monitoring		eGFR monitoring	
	OR (95% CI)	p value	OR (95% CI)	p value	OR (95% CI)	p value
White	1.00 (Reference)	-	1.00 (Reference)	-	1.00 (Reference)	-
Asian	1.20 (1.08-1.33)	<0.001	1.10 (0.98-1.22)	0.111	1.09 (0.99-1.20)	0.097
Black	1.04 (0.91-1.19)	0.589	1.11 (0.95-1.30)	0.186	0.89 (0.79-1.01)	0.074
Mixed	1.01 (0.76-1.35)	0.949	1.17 (0.83-1.64)	0.368	0.88 (0.68-1.15)	0.350
Other	0.74 (0.57-0.96)	0.025	0.68 (0.52-0.89)	0.005	0.79 (0.62-1.02)	0.067

Table 2. Odds ratios for monitoring in 2015 by ethnicity. Adjusted for age, gender, socioeconomic status, body mass index, glycaemic control, renal function, duration of diabetes, and number of previous diabetes medications.

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