Ethnic disparities in medication persistence in type 2 diabetes:
Non-whites have reduced persistence

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Background

- Previous studies in the USA have demonstrated that people from ethnic minorities have reduced medication adherence/persistence.[1,2]

- Difficult to control for health care costs and access to healthcare in the USA.

- Researchers have suggested that these are potential barriers to medication adherence/persistence in these groups.[3,4]

1. Egede, E., et al., (2011). Annals of Pharmacotherapy. **45**(2): p. 169-179.
2. Shenolikar, R.A., et al. (2006). Journal of the National Medical Association. **98**(7): p. 1071-1077.
3. Bezie, Y., et al. (2006). Diabetes and Metabolism, 2006. **32**(6): p. 611-616.
4. Guénette, L., et al. (2013). Diabetes and metabolism, 2013. **39**(3): p. 250.

Study Aim and Design

Do ethnic disparities in medication persistence exist in a healthcare system which is free at the point of care?

Retrospective cohort study on a large community based population in England

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Data Collection

- Study database: RCGP RSC
  - **127 primary care practices across England**
  - **Anonymised records for all patients**
  - **11 years of data (2004-2015)**

- Diabetes population: 58,717 adults with T2DM
 - **Identified using clinical codes (P4P)**

Ethnicity identification

Informatics ontology (undergoing peer review)
- Ethnicity codes (previously included in P4P)
- Externally validated surrogate codes
  - Examples:
    - 13l1. 'Main language spoken Bengali'
    - 94.3% PPV for Asian ethnicity

    - 9NU6. 'Interpreter needed-Bengali'
    - 93.9% PPV for Asian ethnicity

Ethnicity identification

- Improved ethnicity identification:
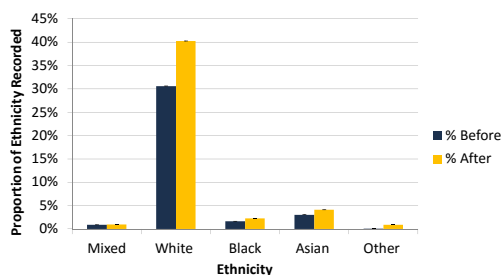
Method

- All currently used non-insulin diabetes medications were included for analysis of persistence:
  - metformin, sulphonylureas, etc
- Non persistence was defined as a medication gap of ≥ 90 days
- Cox proportional hazards model adjusting for:
  - Age, socioeconomic deprivation, alcohol and smoking use, HbA1c, duration of diabetes, presence of complications and comorbidities, number of concurrent and previous medications.

Results

Crude median persistence:

- White people (52,192 medications):
  2.53 years (2.49-2.58)
- Asian people (6,831 medications):
  1.11 years (1.05-1.17)
- Black people (2,265 medications):
  0.93 years (0.87-1.03)
- Mixed ethnicities (574 medications):
  1.47 years (1.26-1.80)
- Other ethnicities (413 medications):
  1.37 years (1.23-1.52)

Results

White ethnicity (n=52,192)
Mixed ethnicity (n=574)
Asian ethnicity (n=6,831)
Black ethnicity (n=2,265)
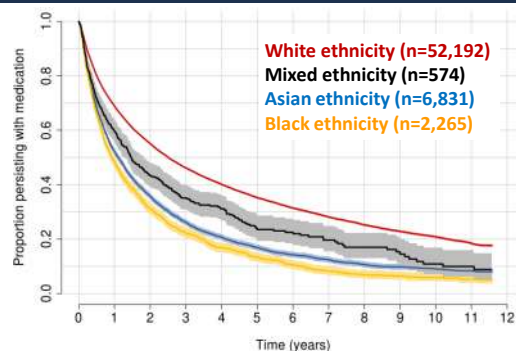
Results

Adjusted hazard ratio for non-persistence:

- White: comparison group
- Asian:
  HR **1.61 (1.05-1.66; p < 0.001)**
- Black:
  HR **1.82 (1.73-1.92; p < 0.001)**
- Mixed:
  HR **1.37 (1.23-1.52; p < 0.001)**
- Other:
  HR **1.65 (1.46-1.86; p < 0.001)**

Strengths and limitations

Limitations
- Reasons for association not possible to explore
- Proportion of people with no recorded ethnicity

Strengths
- UK dataset minimises the impact of disparity caused by cost and access to healthcare
- Large population size
- Real world data

Conclusions

In people with type 2 diabetes, non-white ethnicity is associated with reduced medication persistence.

Further work is needed to identify the factors underlying these disparities.

Acknowledgements

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