

Investigating associations between ethnicity and outcome from COVID-19 Rapid report from CO-CIN for SAGE 14th April 2020.

Ewen Harrison (University of Edinburgh), Annemarie Docherty (University of Edinburgh),
Calum Semple (University of Liverpool)

Aim: to identify any difference in survival from COVID-19 associated with membership of an ethnic group.

Summary: More deaths are observed than expected in the Black ethnic group compared to the white ethnic group. The number of deaths in the Asian and Other groups was not different to the White ethnic group.

It is important to recognise that we are not able to adjust our analysis for the influence of confounding by factors such as multiple deprivations and socioeconomic status. These and other personal identifiers are not collected in for CO-CIN for data privacy reasons (Data Protection Act 2018). In our previous related work on A/H1N1pdm2009, adjustment of Socio-economic Status and Index of Multiple Deprivations (DOI: 10.1017/S0950268814001873) accounted for variation in outcomes.

Methods

CO-CIN is a dynamic clinical study of laboratory proven COVID-19 patients (n=12,335 as of 2020-04-13 07 2100 GMT) admitted to UK hospitals. De-personalised routine health care data is collected from case notes, by an extension to the ISARIC WHO Clinical Characterisation Protocol UK (CCP-UK). To avoid bias in the assessment of outcomes, patients admitted to hospital in the most recent 2 weeks were excluded (those admitted before 2020-03-30 are included).

Ethnic group membership is reported from patients' hospital records as: East Asian, South Asian, West Asian, Black, White, Arab, Latin American, Aboriginal/First Nations, and Other. For the purposes of this analysis, these are collapsed to Asian, Black, White, and Other based on frequency.

Results

6711 patients with known ethnicity were included (Table 1). When compared to the proportions seen in the general population, there were slightly fewer Asian patients and slightly more Black patients than expected.

Table 1. Proportion of patients included by ethnic group.

		N (%)	England and Wales 2011 Census (2019 update*)
Ethnicity	Asian	402 (6.0)	7.5%
	Black	296 (4.4)	3.4%
	White	5533 (82.4)	86%
-	Other	480 (7.2)	3.1%

* <https://www.ethnicity-facts-figures.service.gov.uk/uk-population-by-ethnicity/national-and-regional-populations/population-of-england-and-wales/latest>

Non-white ethnic groups were younger (Median (interquartile range): Asian 59 y (45-71), Black 58 y (47-74), White 74 y (60-83), Other 59 y (45-71)) and more likely to have diabetes (N (%): Asian 135 (37%), Black 111 (40%), White 1212 (24%), Other 141 (32%)).

Non-white ethnic groups were less likely to report other comorbidities such as cardiorespiratory disease and chronic neurological disease/dementia.

Examining ethnicity in isolation, non-white ethnic groups have the same or significantly better survival than the white ethnic group (Figure 1).

However, when accounting for age and comorbidity, those in the black ethnic group were at greater risk of death (Hazard ratio 1.60 (1.17-2.18, p = 0.003)) than those in the white ethnic group. No difference in survival was seen in the Asian or Other ethnic groups.

Figure 1. Survival in patients by ethnic group. Kaplan-Meier survival methods. Log-rank test.

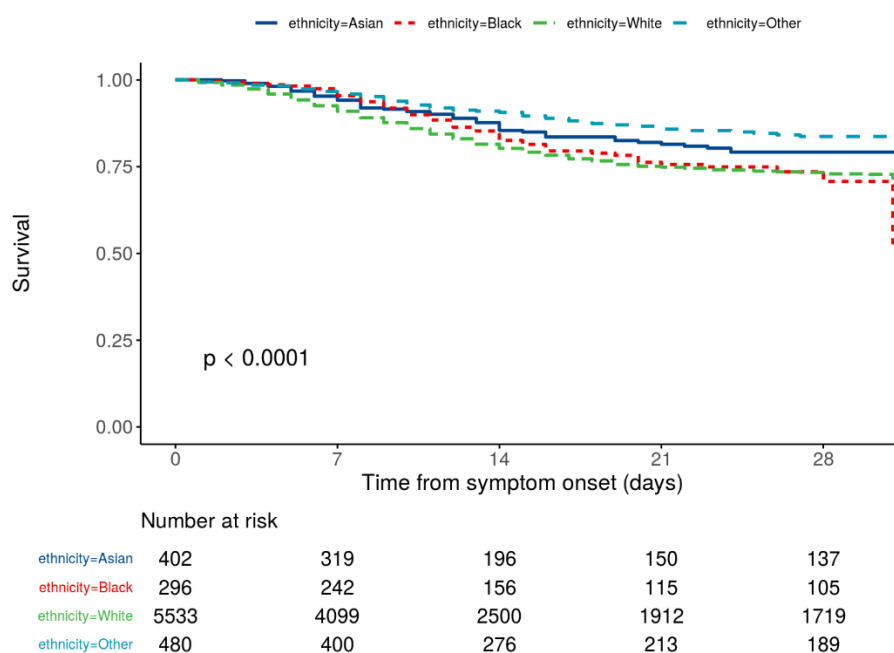


Figure 2. Survival in patients by ethnic group. Cox proportional hazards model adjusting for age, sex, obesity, diabetes, heart disease, lung disease, kidney disease, cancer, and dementia.

Survival: Hazard ratio (95% confidence interval)

Ethnicity	Hazard Ratio	95% CI	p-value
Asian	0.97	(0.66-1.41)	p=0.859
Black	1.60	(1.17-2.18)	p=0.003
White	-	-	-
Other	0.99	(0.71-1.37)	p=0.942

