SURVIVAL ANALYSIS: SURVIVAL PATTERNS IN BRAIN TUMOUR PATIENTS
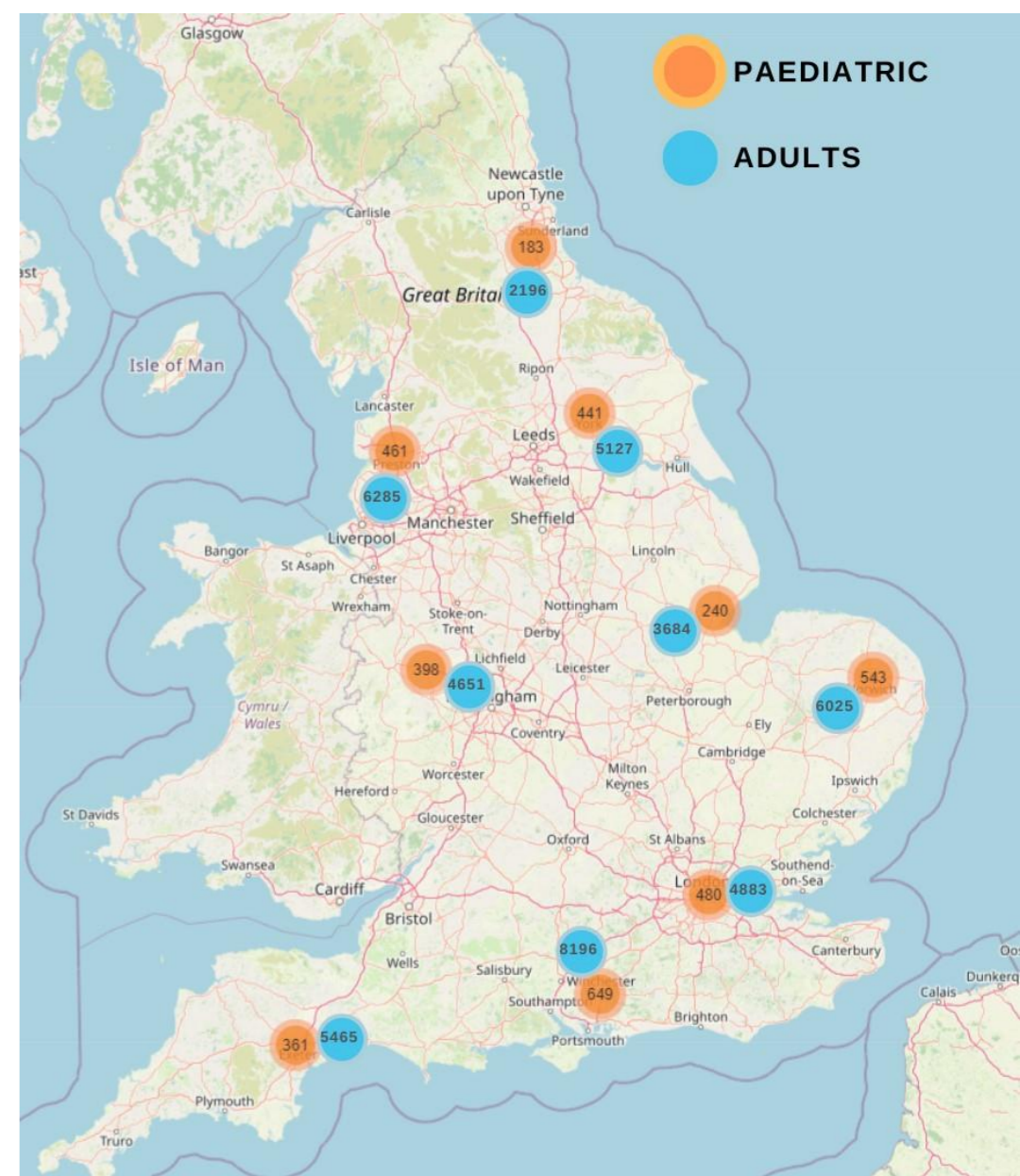### AYODOTUN IBRAHIM

THE BRAIN TUMOUR CHARITY

INTRODUCTION

In the realm of brain tumour survival analysis, every discovery sparks new questions. What defines the trajectory of survival? What are the true determinants of a patient's fate? However, factors such as tumour type, ethnicity and region require sophisticated statistical techniques to uncover meaningful insights from data. **Ethnicity's impact** on genetics, behaviour, socioeconomic factors, healthcare access, and interactions with variables makes it crucial in survival analysis. Understanding these dynamics informs equitable healthcare, personalized treatments, and effective public health strategies to address disparities and improve outcomes (2).
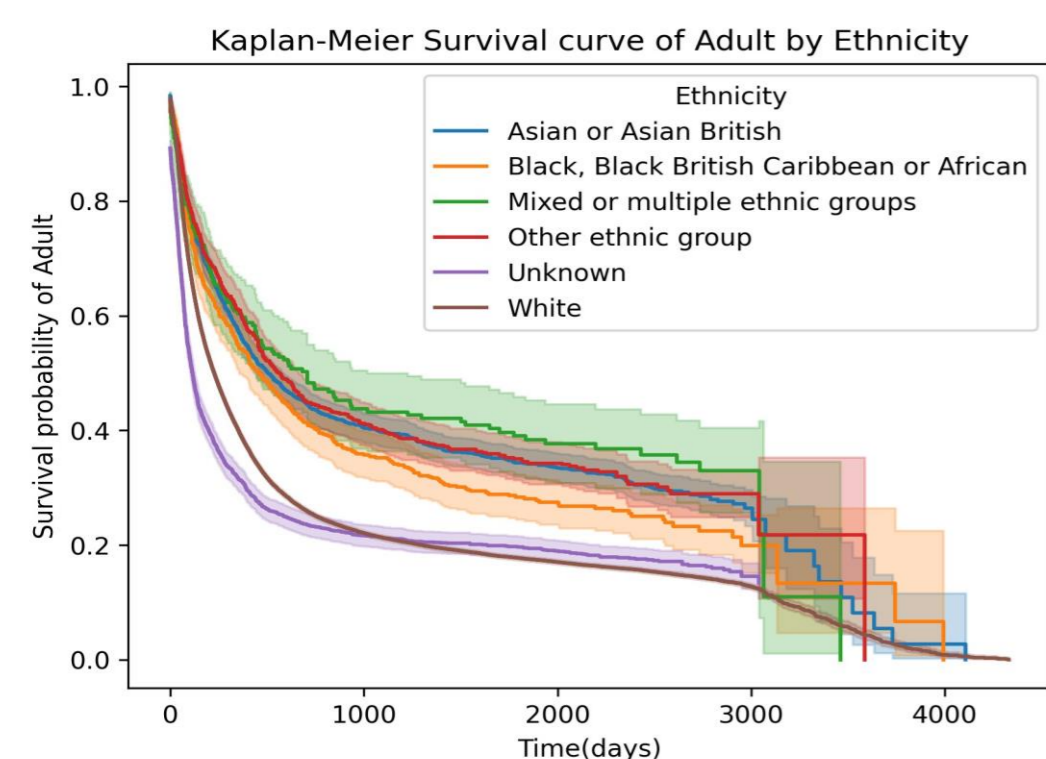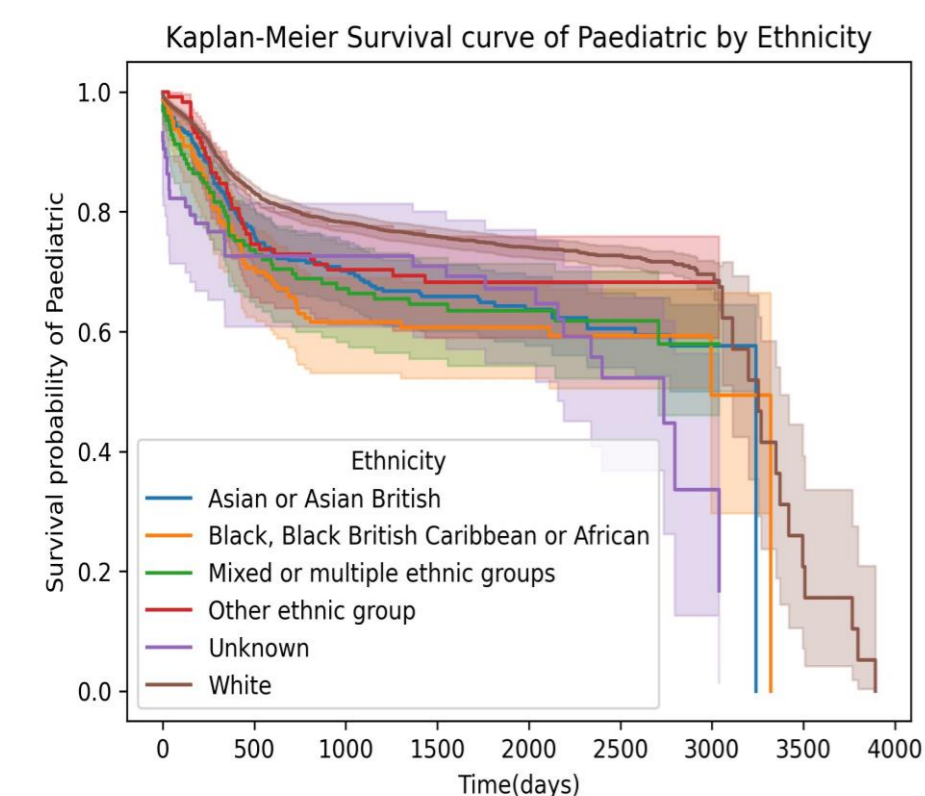
DATASET
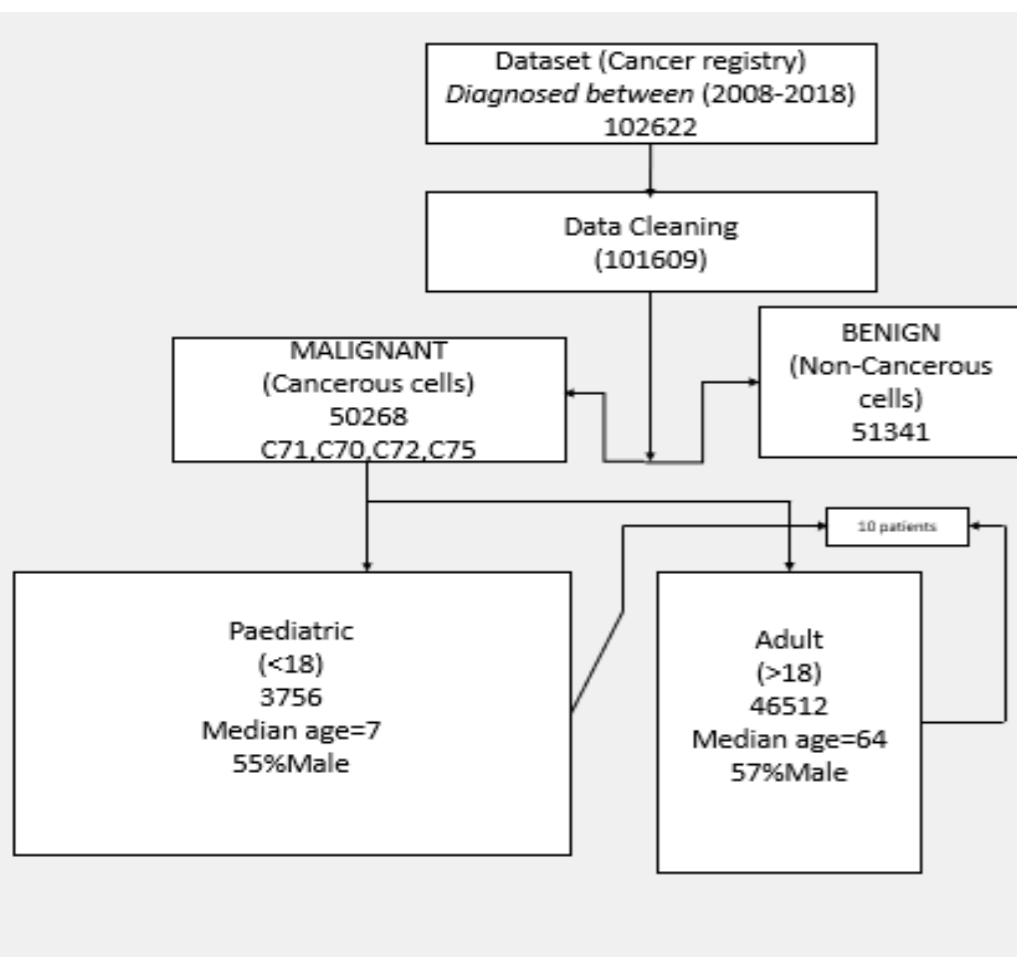
	2011 (Census)	2021 (Census)	Dataset (Adult)	Dataset (Paediatric)
White	86%	81.7%	41,814 (89.9%)	3,016 (80.3%)
Asian or Asian British	7.5%	9.3%	1,444 (3.1%)	281 (7.5%)
Black, Black British Caribbean or African	3.3%	4.0%	534 (1.14%)	143 (3.8%)
Mixed or multiple ethnic groups	2.2%	2.9%	199 (0.42%)	125 (3.3%)
Other ethnic group	1.0%	2.1%	674 (1.44%)	118 (3.1%)
Unknown	N/A	N/A	1847 (3.97%)	73 (1.9%)

METHODS & RESULTS

- **Paediatric:** Those from "Other ethnic groups" and "Unknown" ethnicities have minimal impact on survival.
- **Adults:** white ethnic group have the highest declining rate. This shows ethnicity is a major factor for survival

- **Paediatric:** For paediatric patients, ethnicity, age, and sex are identified as statistically significant factors affecting survival outcome
- **Adults:** Ethnicity continues to play a role, with "Asian or Asian British" background improving survival prospects. Age and gender also prove to be influential factors for survival outcomes in adults

FINDINGS

- The models highlights potential variations in healthcare. However, it's important to note that this is an initial inquiry, and forthcoming research will delve deeper into investigating these disparities.

BENEFITS

- This study provides valuable insights to the policy team regarding potential areas of investigation. Should the results be validated, steps can be taken to ensure uniform levels of care for everyone.

REFERENCES
1. Ethnicity facts and figures – GOV.UK (ethnicity-facts-figures.service.gov.uk)
2. Survival analysis—part 2: Cox proportional hazards model - PMC (nih.gov)