

Left Behind by Health Data

Understanding how place shapes the health trajectories of young people in coastal and deprived communities

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Sussex

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WHY THIS MATTERS

A child born in Margate faces a fundamentally different health future than one born ten miles inland, not because of bad luck, but because of where they live, the quality of their housing, whether there is work nearby, whether their community has been noticed.

Young people in ARC KSS coastal and rural communities, those who are **NEET**, in care, or in contact with the criminal justice system, are precisely the people health data systems were not built to see clearly. **This research is about changing that.** The gap between what data we have and what we can learn from it is where this research lives.

89+

freely accessible datasets describing wider determinants of health in England

Childs, Farmer, George, Ford & Rees-Roberts, 2024

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validated methods linking these datasets to NHS youth health outcomes at small area level

The gap this PhD addresses

NHS RECORDS

OpenSAFELY / CPRD

EDUCATION

DfE, NEET status

SOCIAL CARE

Local authority records

89+ DETERMINANTS

Housing, work, environment

GEOSPATIAL

OS, OpenStreetMap, DEFRA



Linked at neighbourhood level (LSOA)

Geospatial mapping, spatial regression and explainable machine learning (SHAP)

Evidence on what shapes health for young people in coastal and rural communities, ready for commissioners and practitioners.

The Research Questions

- 1 Which wider determinants of health, including housing, employment, local environment and community assets, are most strongly associated with adverse health trajectories among young people aged 10 to 24 in coastal and rural ARC KSS communities?
- 2 Do these associations differ between subpopulations: young people who are NEET, in contact with the criminal justice system, or in social care? These are the groups most often missed by routine health monitoring.
- 3 What data linkage methodology can reliably integrate NHS records with education, social care, and place based wider determinants data at neighbourhood level, and what are the limits of those links?

Focus: Kent, Surrey and Sussex, where coastal deprivation sits alongside some of England's most affluent localities, making the place and health relationship both visible and urgent.

Inclusive Research & Impact

Patient and Public Involvement: a Young People's Advisory Group established from Year 1, involving NEET young people, care experienced individuals, and those with criminal justice contact, recruited as paid PPI contributors through ARC KSS voluntary sector partnerships, not institutional channels.

METHODOLOGICAL

A validated, openly published data linkage methodology for small area youth health trajectory analysis.

RESEARCH FINDINGS

Hyperlocal evidence on which wider determinants shape young people's health, disaggregated by community type and subpopulation across the ARC KSS footprint.

POLICY & PRACTICE

Guidance for NHS and local authority commissioners investing in the wider determinants of youth health in Kent, Surrey and Sussex.

How I Will Do It

PHASE 1

Build the evidence base

Link NHS primary and secondary care records, DfE data, local authority social care records, and 89 wider determinants datasets at LSOA level.

PHASE 2

Map and model

Geospatial analysis to identify where inequalities cluster; spatial regression and explainable ML using SHAP values.

PHASE 3

Look closer

Disaggregate findings by subpopulation and place type: coastal, rural and urban deprived, not just regional averages.

PHASE 4

Translate to action

Coproduce accessible evidence summaries with ARC KSS partners and a Young People's Advisory Group.

About Me

I came to this research from two directions. The first is data science: an MSc in Data Science and AI from the University of Hull, two years of professional GIS and data analyst experience in environmental and infrastructure projects, and three years building AI platforms that serve communities mainstream systems overlook.

The second is personal. I founded **ScholarsCitadel** to connect diaspora students with educational support that mainstream platforms did not provide. The young people in coastal towns, in care, outside education are the same people. This PhD is the chance to make that motivation into rigorous, policy relevant evidence.

- MSc Data Science & AI, Hull
- BSc Geology & Mining, ESUT
- GIS & Data Analyst, 2019 to 2021
- 9 published outputs (DOI)
- Mandela Washington Fellow
- OpenUK Ambassador
- STEM Ambassador
- Crest Africa Power 100
- NAGAMS Outstanding Alumnus

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REFERENCES

Childs T et al. (2024). Wider determinants of health in England. *IJPDS*. | CMO (2021). Health in Coastal Communities. DHSC. | Marmot M et al. (2020). Health Equity in England. IHE.