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An investigation into group density associations for language and other minority group positions in Wales: A multilevel analysis of National Survey for Wales data

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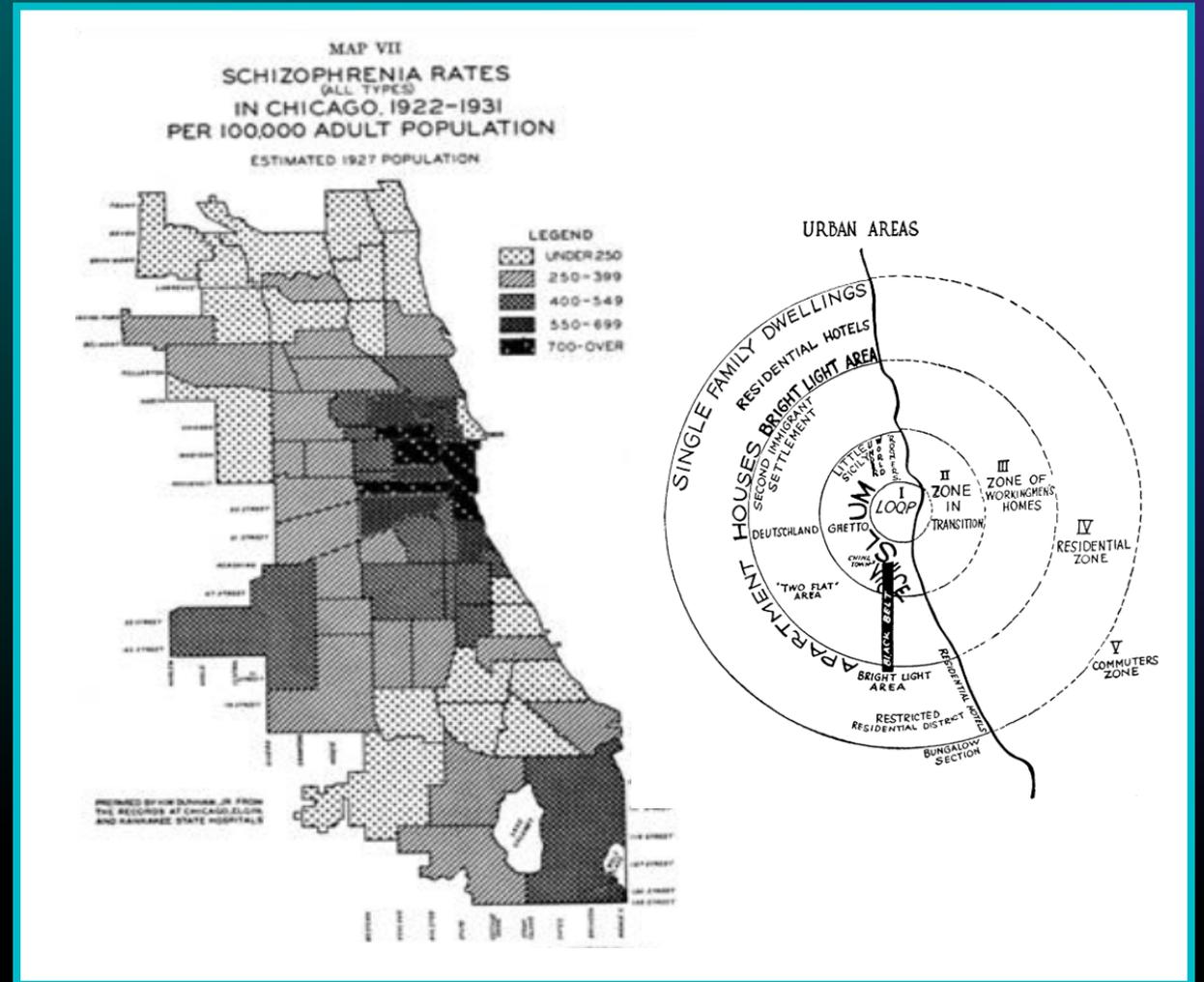
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Background - The social epidemiology of mental illness

Mental illness, particularly severe mental illness such as psychotic disorders, are not similarly distributed throughout the population (March et al., 2008)

Risk varies substantially by **social group** and **place** (Morgan et al., 2020)

Documented in the 1930s in Norway (Ødegaard, 1932) and USA (Faris & Dunham, 1939)



A photograph of a busy street market, likely in a South Asian or Middle Eastern setting. The street is filled with people of various ages and ethnicities. In the foreground, several people are walking towards the camera, some looking directly at it. The background shows a dense crowd of people, some carrying shopping bags, and various market stalls and signs. The overall atmosphere is one of a bustling, active community.

‘Ethnic’ or ‘group’ density associations for mental illness

Rates of mental illness are inversely related to the neighbourhood-level proportion of others belonging to the same minority group (Baker et al., in press; Bécares et al., 2018).

Does not appear to present the same risk across different minority groups (Baker et al., in press).

Most studies have examined associations in ethnic minority and migrant groups.

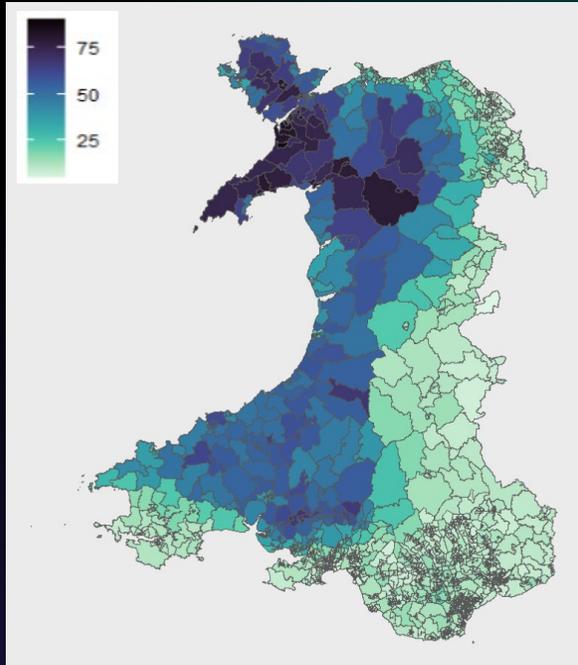
Why might group density associations extend to language and national identity?

- **Disempowerment** i.e., restricted access to the resources, capacities, networks, and voice required to gain autonomy over one's life and circumstances (Qureshi, 2019)
- **Psychological consequences** of belonging to a group perceived as lower status e.g., social defeat (Selten et al., 2013), minority stress (Meyer, 1995)
- Group density associations extend to **minorities characterized by other social identities** e.g., political affiliation (Saville, 2020), lower social class (Zammit et al., 2010) sexual minority status (Hatzenbuehler et al., 2011).
- Native language and national identity?
- Group differences can help elucidate **common mechanisms of causation.**

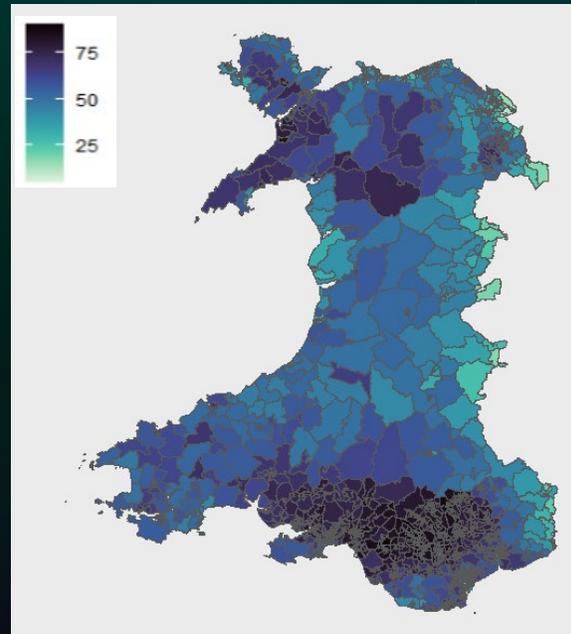
Socio-demographics of Wales



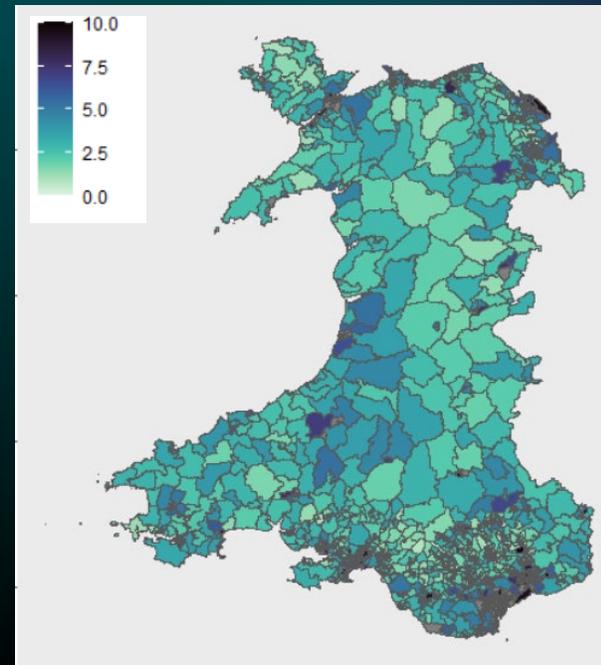
Welsh speakers



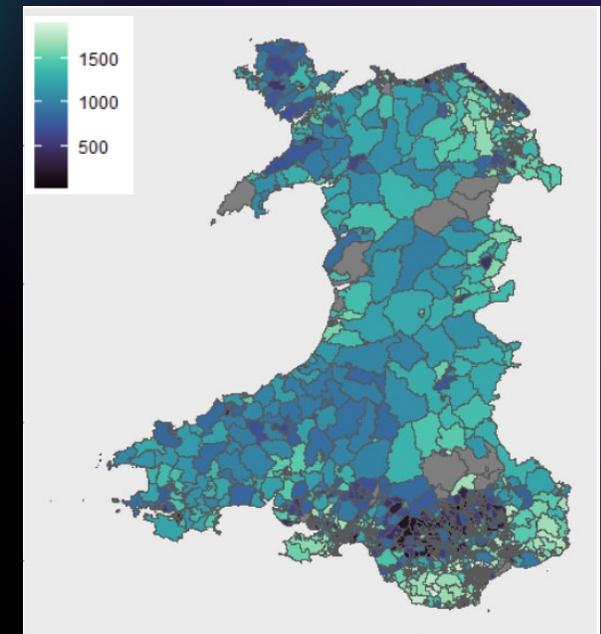
Welsh national identity



Ethnic minorities



Deprivation



Investigating group density associations for language and other minority group positions in Wales

Dataset (n=28,248)

- Individual-level data: National Survey for Wales [NSfW] exploratory dataset (2012-13, 2013-14, 2014-15) (UK data service, 2020)
- Area-level data: UK census data (2011) .
- Lower Super Output Level [LSOA] ~1,500 people.

- Mental health outcome (10-point scale)
 - Anxiety yesterday
 - Happiness yesterday
 - Satisfaction with life
 - Life is worthwhile

Analysis

R package '*glmmTMB*' (Magnusson et al., 2017) used to fit mixed effects models to examine group density associations at the Lower Super Output Area [LSOA] level (~1500 people) for language, national identity, and ethnic group.

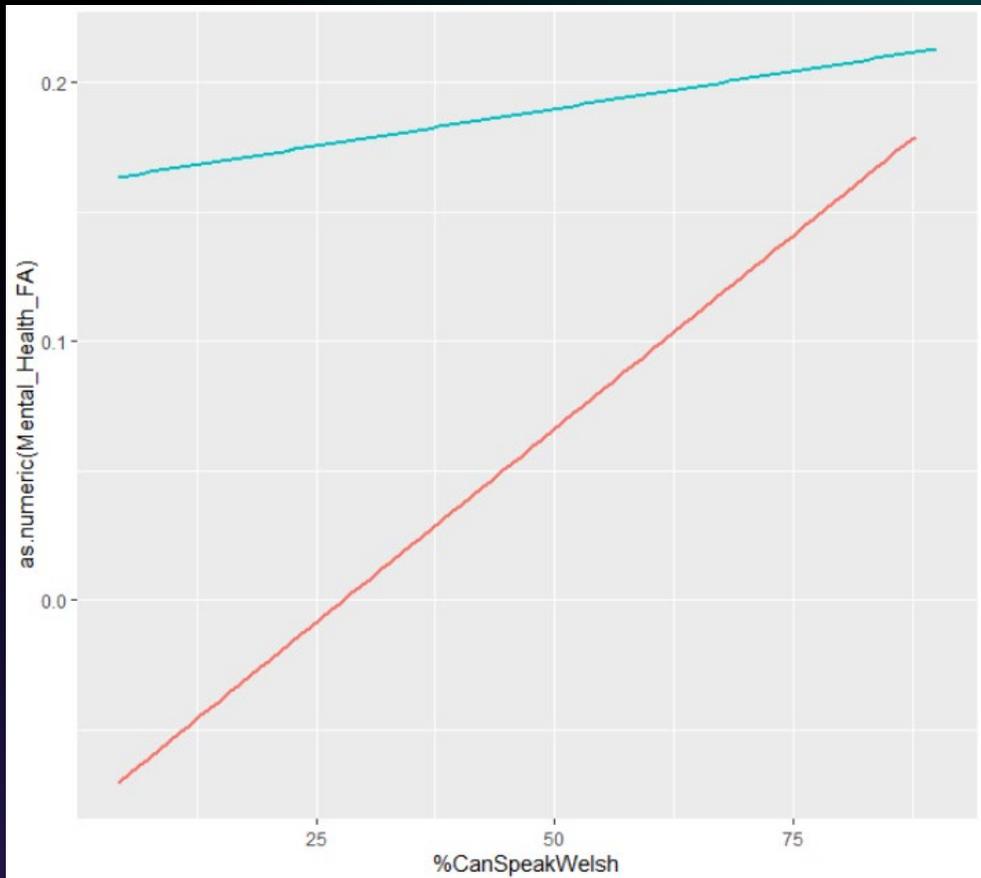
Model 1: Interaction between individual and area-level variable (z-scored), nesting within LSOAs, and sampling weights.

Covariates:

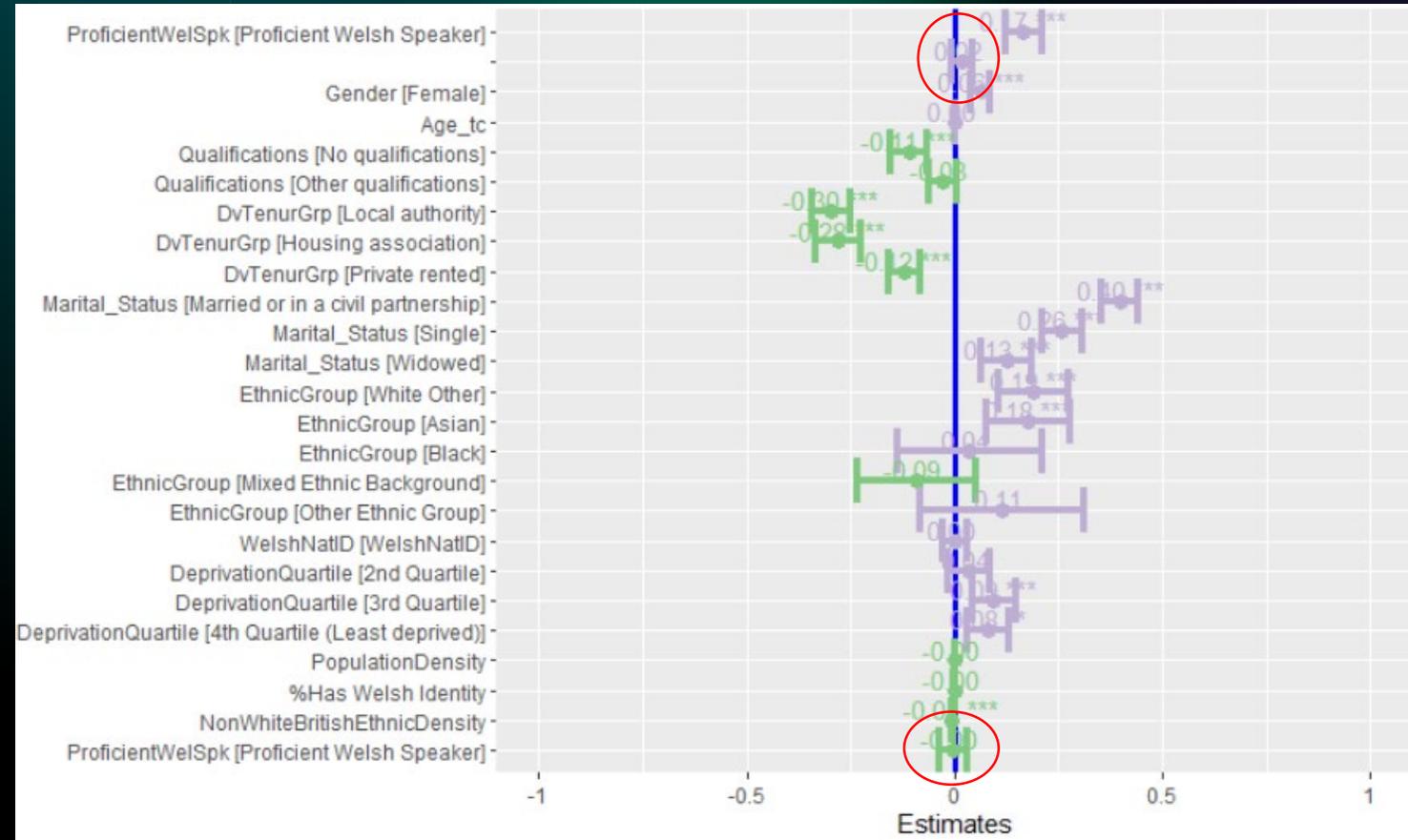
Individual-level age, gender, marital status, education, tenure (SES proxy), ethnic group. Area-level deprivation (Welsh index of multiple deprivation quartiles), population density, proportion of ethnic minorities, % with Welsh national identity, % Welsh speakers

Multicollinearity was assessed using the '*collin.diag*' function (Yanagida & Yanagida, 2020).

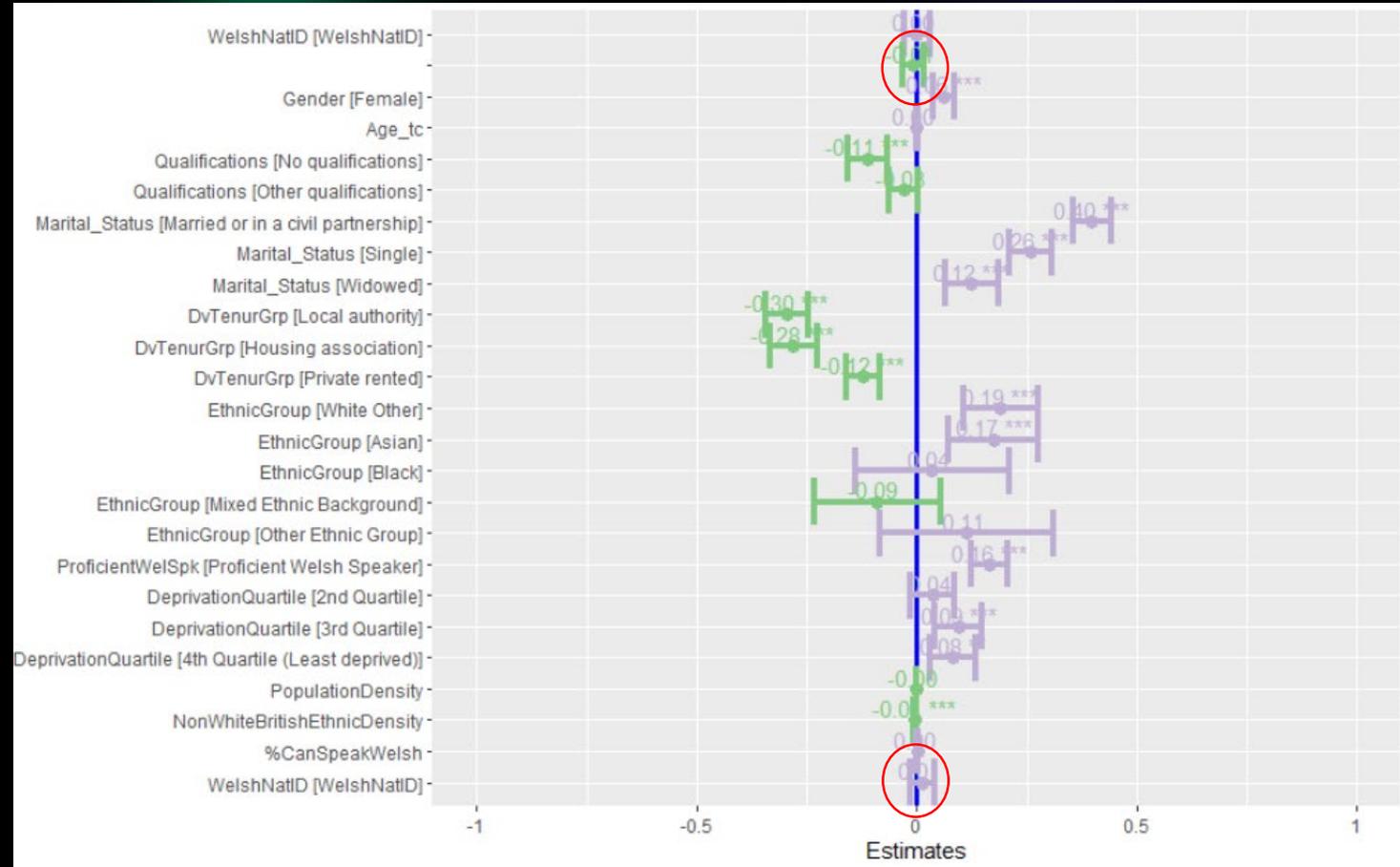
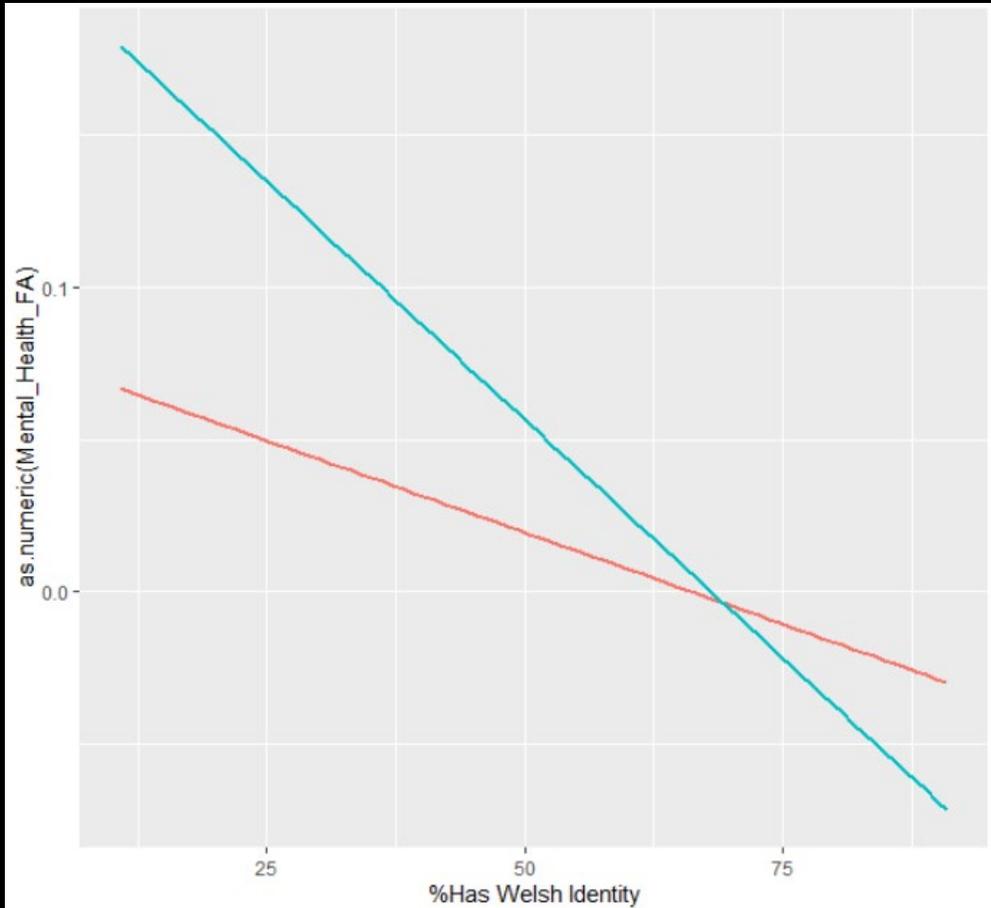
Is there evidence of a group density association for language?



Proficient Welsh speaker. Non-Welsh speaker

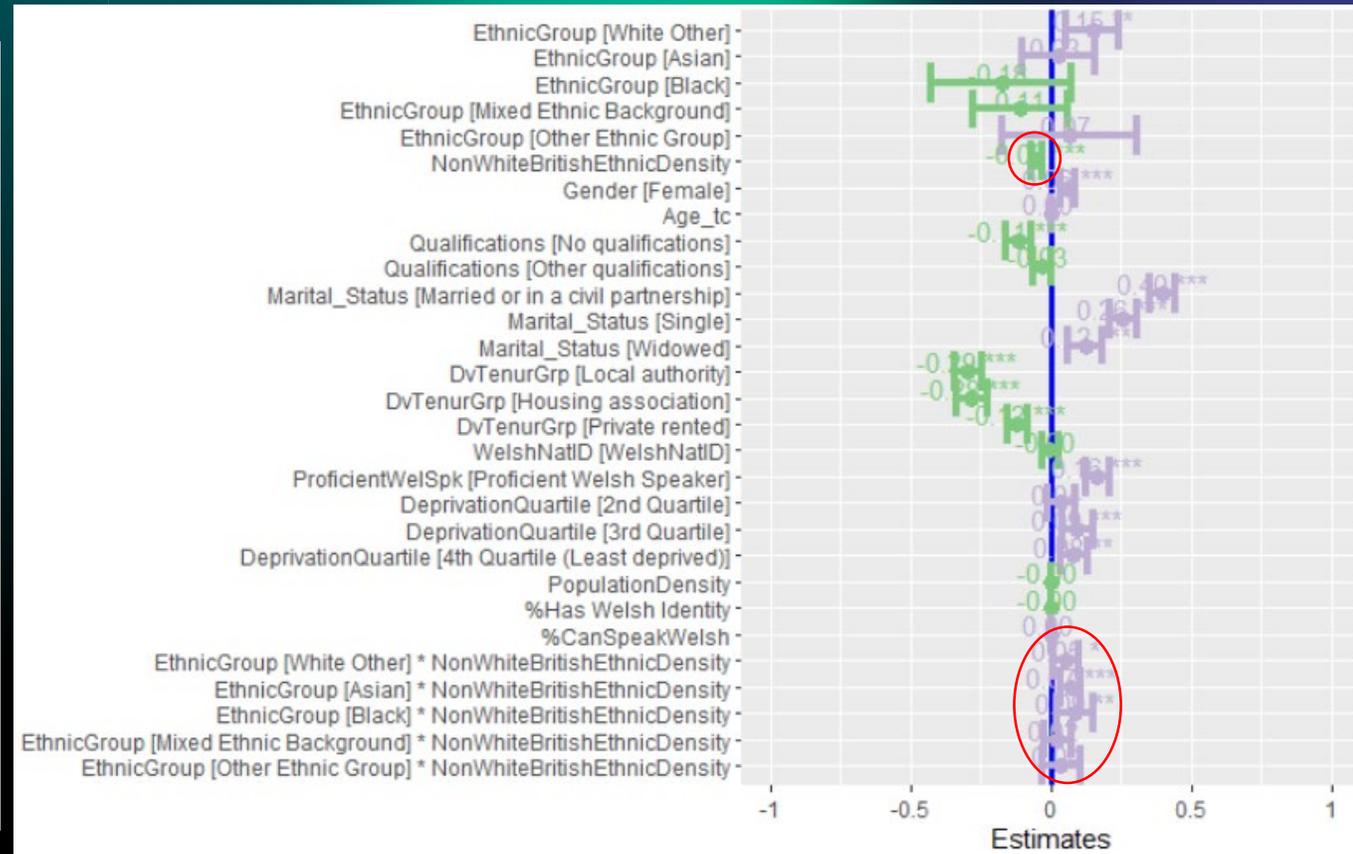
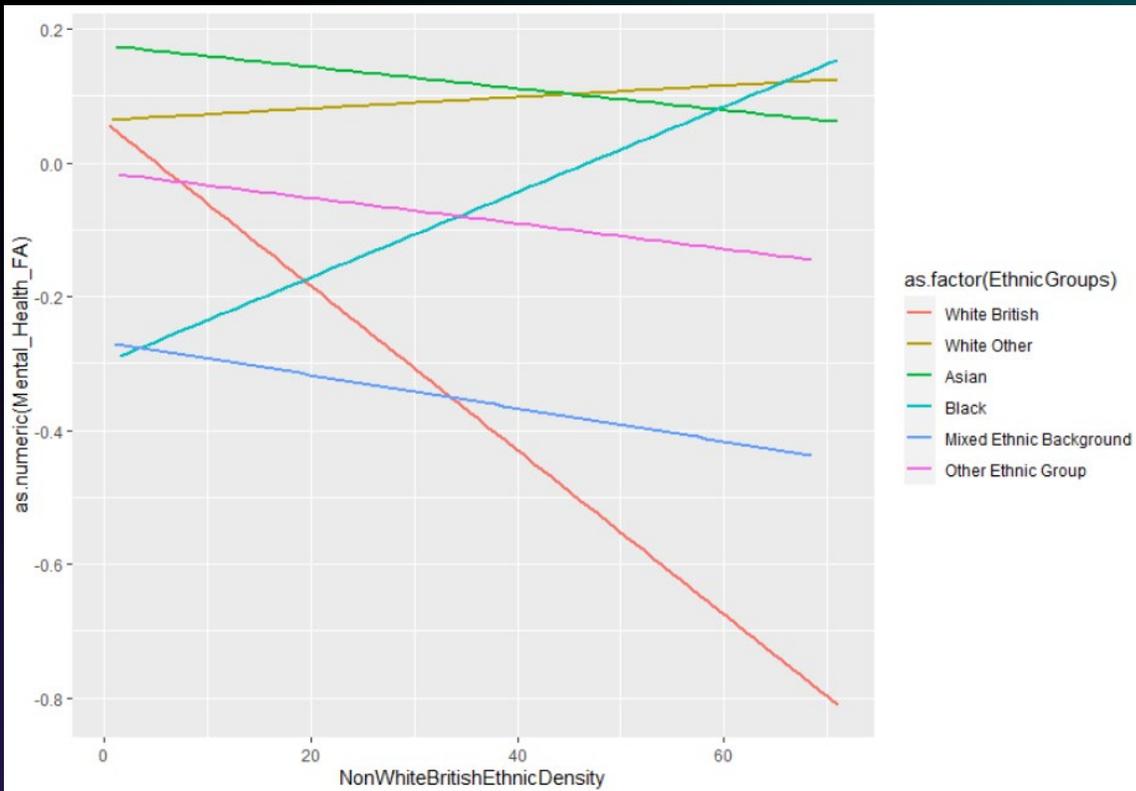


Is there evidence of a group density association for national identity?



Welsh national identity. No Welsh national identity.

Is there evidence of a group density association for ethnic groups?



Summary of key findings

No evidence of an association between group density and mental health for **language**

No evidence of an association between group density and mental health for **national identity**

Significant association between group density and mental health for **ethnic group**

Strengths

- Sample size
- Interesting study setting
- Novel – no previous studies have examined group density associations for language
- Adds to the small evidence-base for group density associations for characteristics other than ethnic minority or migrant status

Limitations

- Self report measures – mental health
- Crude analyses e.g., Welsh national identity and ethnic density
- Small ethnic minority group samples
- Cross-sectional so cannot infer causation
- Difficulties adjusting for individual-level socioeconomic status

Conclusions and future research...

- Examining differences in group density associations for different minority group positions can help elucidate mechanisms.
- We found a crude ethnic density association for mental health in Wales.
- Null findings might mean that group density associations do not extend to language or national identity.
- Perhaps we would see an association if we examined a psychosis outcome. There is evidence for a degree of specificity of group density associations to psychosis i.e., weaker or absent associations for common mental health problems (Bécares et al., 2018).

Future research

- Group density analyses on later waves of the NSfW – more of a clinical dependent variable.
- Qualitative study to better capture the subjective experience of living in a low own-linguistic-group density area.



**Thanks for
listening!**

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Data

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