International Journal of Population Data Science

Journal Website: www.ijpds.org

Predicting neighbourhood-level psychiatric admission rates using multi-level regression with post-stratification-derived estimates of ecological cognitive social capital

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Background with rationale

Ecological cognitive social capital, the aggregated beliefs about community and norms of one's neighbours, is an important protective factor for mental health. However, the techniques currently used in the literature to estimate it are basic. Multi-level regression with post-stratification (MRP) is a technique for making such small area estimates using survey data, and appears a promising alternative to existing methods.

measures, outperforming techniques currently used in the literature in terms of predictive validity.

Main aim

To test the predictive validity of MRP-derived estimates of sense of belonging and generalised trust on psychiatric admission rates across Wales.

Methods

MRP estimates of two questions measuring social capital, trust and belonging, were created for all middle super output areas in Wales using the National Survey for Wales 2016-17. These estimates were then used to predict rates of psychiatric admission in the same areas during 2017. Estimates of the same two variables were also computed using the simple aggregation approach used elsewhere in the literature, and the predictive validity of the two types of estimate were compared

Results

Trust and belonging were both protective factors, with MRP estimates yielding higher risk ratios (.80 and .77 respectively) than simple aggregation equivalents (.91 and .93).

Conclusion

MRP appears to be a useful technique for computing estimates of ecological social capital and other self-report based

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