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Abstract
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Identifying the impact of local crime on mental health: a longitudinal fixed effects analysis

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Background Local crime is believed to influence mental health, yet findings from existing (mainly cross-sectional) studies remain equivocal. Cross-sectional studies, however, cannot clearly establish temporal associations between putative interventions that reduce crime and influences on mental health. This study used longitudinal data and a fixed effects strategy to investigate whether a change in the local crime rate is associated with a change in mental health.

Data Kessler scores of psychological distress and selected variables (age, gender, household income, employment, marital status) at baseline (2006–2009) and follow-up (2010–2011) were obtained for 57,940 Australian adults (the 45 and Up Study, New South Wales [NSW]). Each person was linked via their neighbourhood to official crime counts per 1000 persons in tertiles (available from the NSW Bureau for Crime Statistics and Research). Gender-specific bivariate associations between each crime indicator and mental health were assessed using negative binomial regression. These associations were then subjected to fixed effects to control for time invariant confounding, adjustment for time-varying factors, and stratification by household relocation status to account for possible reverse causality (wherein people with better health select out of neighbourhoods in decline, inducing artefactual associations).

Results Living in neighbourhoods in the highest overall crime tertile was associated with poorer mental health among men (incident rate ratio (IRR) 1.18 (95% confidence interval (95% CI) 1.15, 1.21)) and women (IRR 1.16, 95% CI 1.13, 1.18). Adjusting for time-invariant confounding via fixed effects slightly attenuated this association for men (IRR 1.15, 95% CI 1.11, 1.20) but strengthened it for women (IRR 1.22, 95% CI 1.18, 1.27). Controls for ageing and change in household income, employment and marital status explained the association between local crime and mental health for men (IRR 1.03, 95% CI 0.99, 1.07), but for women the association remained (IRR 1.06, 95% CI 1.02, 1.10). Stratifying the models by relocation status, no associations between crime and mental health were found among men and women who changed neighbourhoods. Among those who remained in-situ, an increase in the local crime rate was associated with worsening mental health among women (IRR 1.07, 95% CI 1.03, 1.12), but not for men. Similar results were obtained when investigating associations between mental health and sub-categories of crime (e.g. malicious damage).

Conclusion This longitudinal study demonstrates that change in the local crime rate is associated with change in mental health among women. Why this was not the case for men requires further investigation. Overall, investments in crime prevention can be seen as investments in mental health.