Online dating and sexually transmitted infections in england: an ecological study using google trends data

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Abstract

Background: Online dating, and the use of dating smartphone applications has been theorised as a driver behind recent increases in some sexually transmitted infections (STIs). Existing literature is mixed, but some studies demonstrate an increase in high-risk sexual behaviours or STIs in online daters. However, many previous studies have a narrow study population and often rely on survey or interview data, which may not be representative. This ecological study aimed to investigate the association between online dating and STIs by using existing aggregated population-level data.

Methods: We used official Public Health England STI incidence data by county or unitary authority in England for 2017. Based on Google Trends internet search data for the names of frequently used dating applications, we constructed a proxy measure for dating application usage, by English location in 2017. We named this measure ‘proxy dating app score’. We used generalised linear modelling to explore the association between STI incidence and ranked proxy dating app score while controlling for known confounders (area index of multiple deprivation, proportion of people of black ethnicity in the population, and proportion of people aged under 25 in the population), assuming multiplicative effects. We performed extensive sensitivity analysis to test our assumptions, including a binomial regression model with STI incidence rates as the dependent variable. We used SPSS v22 to conduct the analysis.

Results: In our main analysis, we observed a positive association between STI incidence and ranked proxy dating app score. Every increase in proxy dating app score rank was linked to a 7% (95% CI: 4% to 11%, p<0.01) rise in the count of STIs. Area deprivation and proportion of people of black ethnicity were also positively associated with count of STIs, 19% (95% CI: 13% to 25%) and 23% (95% CI: 20% to 27%) respectively, while the proportion of people aged under 25 was not a significant predictor. The direction of the associations did not change in the sensitivity analysis.

Conclusion: Our study provides further evidence for the potential link between dating applications usage and STIs at a population level. We used an emerging data source (Google Trends data) to avoid selection and desirability biases that more traditional methodologies may have. However, ecological fallacy and the use of a proxy measure for online dating applications usage are the main limitations of our approach. A well-designed longitudinal study is justified and necessary to provide robust, actionable evidence for public health priorities and strategy.