
Home visitation program effectiveness and the influence of community behavioral norms: a propensity score matched analysis of prenatal smoking cessation

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BACKGROUND: The influence of community context on the effectiveness of evidence-based maternal and child home visitation programs following implementation is poorly understood. This study compared prenatal smoking cessation between home visitation program recipients and local-area comparison women across 24 implementation sites within one state, while also estimating the independent effect of community smoking norms on smoking cessation behavior.

METHODS: Retrospective cohort design using propensity score matching of Nurse-Family Partnership (NFP) clients and local-area matched comparison women who smoked cigarettes in the first trimester of pregnancy. Birth certificate data were used to classify smoking status. The main outcome measure was smoking cessation in the third trimester of pregnancy. Multivariable logistic regression analysis examined, over two time periods, the association of NFP exposure and the association of baseline county prenatal smoking rate on prenatal smoking cessation.

RESULTS: The association of NFP participation and prenatal smoking cessation was stronger in a later implementation period (35.5% for NFP clients vs. 27.5% for comparison women, $p < 0.001$) than in an earlier implementation period (28.4% vs. 25.8%, $p = 0.114$). Cessation was also negatively associated with county prenatal smoking rate, controlling for NFP program effect, (OR = 0.84 per 5 percentage point change in county smoking rate, $p = 0.002$).

CONCLUSIONS: Following a statewide implementation, program recipients of NFP demonstrated increased smoking cessation compared to comparison women, with a stronger program effect in later years. The significant association of county smoking rate with cessation suggests that community behavioral norms may present a challenge for evidence-based programs as models are translated into diverse communities.

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