

CRITICAL APPRAISAL OF AN ECOLOGIC STUDY
ECOLOGIC WORKSHEET

Citation:

Are the results valid?

1. Was there a clearly defined, focused research question? What was the study question?	
2. What was the main exposure? Was exposure measured at the individual or ecologic (aggregate) level?	
3. What was the main outcome? Was outcome measured at the individual or ecologic (aggregate) level?	
4. How were the main exposures ascertained? What were the sources of exposure information? Were the exposures clear, specific and measurable? Any likelihood of exposure misclassification?	
5. What were the sources of outcome information? How well were the outcomes measured? Was the outcome clear, specific and measurable? Any likelihood of outcome misclassification?	
6. Did the study adjust for confounding? What confounders were considered and how were they measured? Were confounders measured at the individual or ecologic (aggregate) level? Is measurement error a concern with confounders?	
7. Have the authors identified all potentially important confounders? Was the adjustment adequate? Is residual confounding likely?	
8. Did the investigators clearly define their unit of analysis (e.g. individual level analysis, completely ecologic analysis, partially ecologic analysis, multi-level analysis that combines analyses conducted at two or more levels)? How many units were there in the study?	

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9. Did the investigators clearly state the type of inference they wished to make? Biologic (or biobehavioral) inferences about effects on individual risks or to make ecologic inferences about effects on group rates?	
10. Are the analytic strategies clearly described? Were the data analytic methods appropriate for the ecologic study design and unit of analyses and unit of inference (as above)?	

What are the results?

What are the study results?	
11. How strong was the ecologic correlation between exposure and outcome (e.g. correlation coefficient, regression line, adjusted beta coefficients in a linear regression model)?	
12. How precise was the estimate of the association (i.e. confidence intervals around the point estimates or p-values)?	
13. Did the authors consider ecologic bias while interpreting their results? Were the interpretations consistent with the ecologic design used and unit of analyses and unit of inference (as above)?	

In summary:

What are the major strengths of this study?
What are the major limitations of this study?