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COMMENTARY ON:

**Climate–Suicide Relationships: A Research Problem in Need of Geographic
Methods and Cross-Disciplinary Perspectives**

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I read with interest the paper entitled “Climate–Suicide Relationships: A Research Problem in Need of Geographic Methods and Cross-Disciplinary Perspectives” by Dixon and Kalkstein, and I think it will make a useful contribution to the existing literature.

The article provides a comprehensive yet easy-to-understand overview of past and current research on the relationship between climate and suicide. The inconsistency in the results and methods of different studies is identified as an important issue, emphasized throughout the article, with detailed review of common shortcomings and their remedies. As the title suggests, the authors also point out that geographic methods and cross-disciplinary studies can be important in order to better understand the relation between climate and suicide.

In the literature reviewed, the only widely accepted result seems to be that climate probably affects suicide, and that there is a seasonality in suicide with highest rates occurring in late spring and early summer. However, as the authors admit, it is not known whether this seasonal correlation is the result of a causal relationship or random chance. Other than this observation the

literature is largely divided and often contradictory. The authors identify common patterns in existing studies, and offer suggestions in order to achieve more consistent results.

Firstly, the article states and repeatedly stresses the point that the focus should be on understanding the mechanisms underlying the effect of climate on suicide, not simply basing the research on identifying statistical correlations that do not necessarily explain the causality of the relation between climate variables and suicide rate.

Secondly, when studying the influence of climate variables on suicide rate, the study period should be sufficiently long, preferably spanning several years to avoid general conclusions based on one anomalous year. It is also advised to consider multiple locations to avoid anomalous local variables, while keeping in mind that in this case researchers must try to account for population, demographic, and cultural issues. The seasonality in the data is another prominent factor, which can be climatic (e.g. temperature, sunlight, humidity, etc.) or non-climatic (school years, agricultural cycles, major holidays, etc.). Data should be normalized in a way that minimizes the effects of non-climatic variables on suicide. The use of monthly data must involve the smoothing of extreme events (with respect to weather or suicide rate). Daily data is recommended for higher granularity, and it is pointed out that in this case special attention is needed for potential lags or cumulative effects.

Finally, in order to better understand the climate-suicide relation, the article suggests applying geographic methods, such as spatial analysis, multi-scale and composite analysis, statistical normalization techniques, etc., as well as cross-disciplinary approaches. However, the article does not provide enough concrete examples of the potential benefits.

One idea that seems to be missing entirely from the literature review is the possibility of non-linear relationships between climate variables and suicide. All the papers reviewed seem to assume only linear relationships. Yet, in some epidemiological studies the relation between suicide and, for example, temperature is found to be nonlinear, and, hence, research analyses are not based only upon statistical correlations.

As the article concludes, at present there is no clear evidence that climate affects suicide. Suicide is a major, preventable public health problem, therefore it is important to improve our understanding of the underlying mechanisms. The article offers a wide range of suggestions that, if followed carefully, should help researchers avoid typical pitfalls and improve the data selection and analysis methods.