

# Associate Editor's Editorial: Problems of Correlation as Proof of Causation in Social Science Research

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We have all encountered, in scholarly research, profound statements made and theories advanced on the shoulders of little more than correlational data. Despite the timeless reminder that correlation does not prove causation, it remains problematic for many scholars conducting research in the areas of personality traits and violent behavior. Scholars of various disciplines appear enchanted at the sight of a clash between correlation and causation that generally results in reaction to either claiming to have discovered a definitive or causal relationship between two variables. This is particularly evidenced among literature concerning correlates and causes of family violence. Take, for instance, a common finding that victims of corporal punishment experience long-range, negative consequences including low self-esteem, depression, and increased risk of suicide, delinquency, violence, and unemployment (see Straus & Donnelly, 1994).

The methodologies used to support these and similar findings are quite varied. The findings, however, generally result from a simple comparison of families who used corporal punishment with those who do not, followed by an examination of the consequences for each group under study. Among quantitative approaches, for example, findings might resemble the following: Children who were physically punished five times a month had significantly lower levels of self-esteem than, say, children physically punished once a month or not at all. Therefore, corporal punishment is thought to cause low self-esteem. Though certainly logical, the conclusion suffers from a variety of methodological difficulties that preclude any serious considerations of causality. Applying a three-fold test of causality (in quantitative analyses), the following conditions are necessary to establish a causal relationship: (a) the variables must be related, (b) a temporal sequence must exist between the independent and dependent variable, and (c) all other theoretically relevant variables must be ruled out as possible causes as well. Furthermore, in the case of experimental designs, where claims of causality abound, pretests and posttests need administering. Again, after ruling out other theoretically relevant variables—not to mention interaction effects—a cautious interpretation is required. Despite its simplicity, many studies violate these princi-



ples. Most, if not all, researchers appreciate these rules of causality but we do not always follow them, and readers, from time to time, are misled with unqualified causal statements. Admittedly, most disciplines within the social sciences struggle with being labeled a soft science. Therefore few would argue, except for qualitative researchers, the need for more robust statistical techniques, the kind capable of controlling for the simultaneous influence of many variables, a method capable of discerning the relative importance of a given variable when pitted with other theoretically relevant variables. Generally, path analytic and multiple regression models are well-suited for the task of disentangling complex causal relationships, with the former capable of addressing matters of temporal sequence. In this context, findings are, perhaps, best understood with statements such as, "A certain percentage of the variance in some outcome measure is explained by the unique contribution of some significant independent variable." Among qualitative research designs, similar strategies are advocated to distinguish correlation from causation. For example, triangulation of data, methods, and theory is a meaningful mechanism of cross-checking information and conclusions through the use of multiple procedures and sources. Moreover, when the different procedures or sources are in agreement, you have corroboration (see Johnson, 1997).

Ostensibly, the difference between correlation and causation is easily understood for scholars, but what about laypeople, those whom we study and whose behavior we seek to alter? Apparently, laypersons are readily sold on cause and effect relationships, and that is the problem. In the earlier scenario, parents who use corporal punishment would defensively attribute negative consequences to causes (i.e., factors) other than corporal punishment. For example, previous research has shown numerous other correlates and causes of similar outcomes (i.e., low self-esteem) once attributed to corporal punishment (see, e.g., Clark & Clark, 1947; Cross, 1991; Gottfredson & Hirschi, 1990; Ross, 1992). When social scientists continue to rely on correlational data, case studies, and clinical studies to demonstrate the consequences of corporal punishment, they unwittingly provide ammunition to parents that enable them to continue in their behavior. For the record, millions of parents, African Americans in particular, outright refuse to believe that corporal punishment is harmful—neither short term nor long term. In fact, they point out that parents are irresponsible—if not stupid—in their reluctance to use corporal punishment, clinging to biblical passages such as "Spare the rod and spoil the child." Are they correct? In a vitriolic sense, what if corporal punishment and 100 other variables, for example, were found to correlate with low self-esteem? In the absence of further analyses or more rigorous methodologies, we could only ask: So what?

There are countless theories and variables quite useful in the attempt to explain violence, regardless of studies. And our chosen methodologies, including statistical techniques, can enhance the validity of causal statements. Clearly, however, there is a need to overcome our reliance on correlational data if we are to advance our understanding into the causes and consequences of violence.

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