Can we use Bayesian methods to resolve the current crisis of unreplicable research?

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In recent years, psychology and medicine have been rocked by scandals of research fraud. At the same time, there is a growing awareness of serious flaws in the general practices of statistics for scientific research, to the extent that top journals routinely publish claims that cannot be replicated. All this is occurring despite (or perhaps because of?) statistical tools such as Type 1 error control that are supposed to restrict the rate of unreliable claims. We consider ways in which prior information and Bayesian methods might help resolve these problems.