

# **How does temperature affect behaviour? A meta-analysis of effects in experimental studies**

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## **Abstract**

The surrounding environment has a profound impact on human behaviour. Historically, studies have shown that higher temperatures are associated with increases in antisocial behaviours (aggression, violence). More recently, studies have linked higher temperature experiences to increases in prosocial behaviours (altruism, co-operation). Such contrasting patterns leave the status of temperature-behaviour links unclear. Here we conduct a series of meta-analyses of laboratory-based empirical studies that measure either prosocial (monetary reward, gift giving, helping) or antisocial (retaliation, horn honking, sabotage) outcomes, with temperature as an independent variable. Overall, we found that there was no reliable effect of temperature on the behavioural outcomes measured. In follow-up analyses, there was no reliable effect of temperature on prosocial or antisocial outcomes when analysed separately. We consider why the evidence to support temperature-behaviour links from laboratory-based studies is weak, assess potential moderators, and examine how future studies can attempt to reconcile seemingly contradictory patterns in the literature.