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A systematic review and an internal consistency analysis of behavioral habit measures

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Abstract

Research with animal models has shown that repeating an action with enough frequency transforms it from goal-directed to habitual. In contrast to goal-directed, habitual behavior is insensitive to changes in outcome value, inflexible, and guided by the specific context where it was formed. However, the key prediction from animal studies that training leads to habit behavior has not been consistently reproduced in humans. This fact poses a crucial translational problem, requiring a valid procedure for inducing habits in humans. In this work, we reviewed the methodological and theoretical foundations of experimental paradigms that assess habit formation in the laboratory. Across eight studies and seven experimental paradigms, we found mixed results regarding the sensitivity to detect habit formation that each measure had. Only two studies included a paradigm with a measure sensitive to overtraining, while others relied on ad-hoc individual differences explanations to account for its lack of sensitivity at the group level. In this context, future research should evaluate the construct validity of each measure and, additionally, characterize potential individual differences in habit performance. However, it is first necessary to test the reliability of the measures. Here, we reanalyzed public data from each study and calculated the internal consistency of each paradigm's measures using split-half reliability via a permuted random split procedure. Internal consistency of habit measures ranged from 0.17 to 0.84. The results of this work suggest which habit measures are most promising psychometrically and contribute to the establishment of a common protocol for measuring habitual behaviors in humans.

Keywords

laboratory-based; sensitivity; reliability; construct validity

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