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Can Distributional Fitting of Short Semantic Fluency Results Predict ADHD?

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Abstract: Remembering information can be likened to a search through a network composed of semantically related information. An appropriate search through this network requires an adaptive balance between exploratory and exploitative search behaviors. Without exploration, a searcher will perseverate too long on a semantic area devoid of resources. Without exploitation, a searcher may jump around aimlessly, failing to find the semantic areas with plentiful resources (see Hills, Jones, & Todd, 2012). The semantic fluency task, in which subjects are asked to recall items from a given semantic category, can be used to measure these behaviors. Classically, this task has been used to predict Alzheimer's susceptibility, but other clinically relevant predictions have required involved semantic analyses. Here, we show that distribution fitting applied to the gross time series of recall events, can be used to easily predict measures of clinical relevance such as Wender Utah ADHD and Zuckerman's Sensation Seeking scores.