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REPLY

The problem of heterogeneity in autism: Response to Mottron (2021) "Aradical change in our autism research strategy is needed: Back to prototypes"

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Mottron proposed "our ability to discover the mechanisms of autism" (2021, p. 1) would improve by replacing polythetic DSM 5 criteria with prototypical autism based on expert clinicians' personal autism categories, increasing specificity and reducing heterogeneity through limiting DSM 5 symptoms to a smaller set of homogeneous values. The "mechanisms of autism" are the genetic and neurobiological bases for autism pathophysiology. Genes and neurons are "natural kinds," the gold standard of science because of their explanatory powers (Franklin-Hall, 2015). Most research categories are established to discover natural kinds (Franklin-Hall, 2015). The mechanisms of autism have yet to be discovered because autism is a changing category, and all iterations of the autism diagnosis carry the baggage of immense heterogeneity (Mottron, 2021; Waterhouse & Gillberg, 2014). Mottron (2021) claimed research on prototypical autism samples would improve mechanism discovery (p. 6). However, Hyman (2021) asserted that *no* psychiatric diagnoses would discover natural kinds because all psychiatric diagnoses lack objective measures. For Hyman (2021), prototypical autism would not improve finding the mechanisms of autism because it relies on expert personal autism categories, which are not objective measures (Waterhouse & Gillberg, 2014). Moreover, the speed of autism identification (Mottron, 2021, p. 6) does not measure the relative objectivity of personal autism categories. Hyman (2021) noted the core problem: psychiatric diagnoses "are damaging to science" (p. 23) because they limit heterogeneity, but heterogeneity blocks constructing more objective "reductive, uniform" diagnostic categories (p. 26). All heterogeneity is scientifically meaningful, and heterogeneity can only be fully explained by dismantling diagnostic categories (Hyman, 2021; Waterhouse & Gillberg, 2014). Autism heterogeneity may occur because nearly all cases are unique. One solution would be to advocate prototypical autism for treatment research because it relies on expert personal autism categories, but encourage experimental research that takes autism apart to explore heterogeneity in nondiagnostic groupings.

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