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Fox, E., & Beevers, C. G. (2016). Differential sensitivity to the environment: Contribution of cognitive biases and genes to psychological wellbeing. Molecular Psychiatry, (May), 1-6. http://doi.org/10.1038/mp.2016.114 Negative cognitive biases and genetic variation have been associated with risk of psychopathology in largely independent lines of research. Here, we discuss ways in which these dynamic fields of research might be fruitfully combined. We propose that gene by environment (G × E) interactions may be mediated by selective cognitive biases and that certain forms of genetic ‘reactivity’ or ‘sensitivity’ may represent heightened sensitivity to the learning environment in a ‘for better and for worse’ manner. To progress knowledge in this field, we recommend including assessments of cognitive processing biases; examining G × E interactions in
‘both’ negative and positive environments; experimentally manipulating the environment when possible; and moving beyond single-gene effects to assess polygenic sensitivity scores. We formulate a new methodological framework encapsulating cognitive and genetic factors in the development of both psychopathology and optimal wellbeing that holds long-term promise for the development of new personalized therapies. Genetic and environmental influences make substantive contributions to psychological wellbeing and evidence suggests that certain genetic variants, previously associated with vulnerability, may also facilitate adaptive functioning in positive or supportive environments (that is, differential susceptibility). The essence of the differential susceptibility hypothesis (DSH) is that with similar group sizes of more and less susceptible individuals there will be no main genetic effect. Instead, there will be a crossover interaction with susceptible individuals doing worse in adverse environments but better in supportive environments than less susceptible individuals. This pattern does of course undermine large-scale genome-wide association studies (GWAS) that look only for main genetic effects.


