A masterful review by Hibbing and colleagues establishes close links between physiological and psychological responses and ideological preferences. However, existing research cannot resolve the "chicken-and-egg problem" in political neuroscience: which is cause and which is effect? We consider the possibility, which they reject, that general ideological postures, if consistently adopted, could shape psychological and physiological functioning.
Abstract

A masterful review by Hibbing and colleagues establishes close links between physiological and psychological responses and ideological preferences. However, existing research cannot resolve the “chicken-and-egg problem” in political neuroscience: which is cause and which is effect? We consider the possibility, which they reject, that general ideological postures, if consistently adopted, could shape psychological and physiological functioning.

Main text

Political discourse in the U.S. and elsewhere is characterized by vast differences in cognitive, perceptual, rhetorical, and motivational styles as well as ideological substance or content as a function of left-right (or liberal-conservative) political ideology. These differences are manifested in budgetary stalemates, protracted conflicts over tax policy and social security, debates about military spending and intervention, and disputes over cultural issues. Ideological differences have long been assumed to arise from exposure to mass media, family socialization, economic interests, and beliefs about human nature.

Ten years ago it was controversial to suggest, as Jost, Glaser, Kruglanski, and Sulloway (2003) did, that ideological differences result, even in part, from situational and dispositional variability in psychological needs or motives that are not explicitly political—such as basic needs to manage or reduce uncertainty and threat. There is by now evidence from a variety of laboratories around the world using a variety of methodological techniques leading to the inescapable conclusion that the cognitive-motivational styles of leftists and rightists are quite different (e.g., Jost & Amodio, 2012; Kandler, Bleidorn, & Riemann, 2012). This research consistently finds that conservatism is positively associated with heightened epistemic concerns for order, structure, closure, certainty, consistency, simplicity, and familiarity, as well as existential concerns such as perceptions of danger, sensitivity to threat, and death anxiety.

Masterfully, Hibbing, Smith, and Alford (in press) have reviewed dozens of studies revealing, among
other things, that conservatives exhibit stronger physiological and psychological responses to negative stimuli (including stimuli that are threatening or disgusting), in comparison with liberals. We now know that there are also ideological differences in neurological structure and function, especially when it comes to the anterior cingulate, amygdala, and insula (Amodio, Jost, Master, & Yee, 2007; Kanai, Feilden, Firth, & Rees, 2011).

The first objection that Hibbing and colleagues consider is the one that we feel is most in need of conclusive scientific research. They ask on p. 25: “Do physiological and broad psychological traits shape political dispositions or might political dispositions actually shape physiological and broad psychological traits?” The authors argue that the former direction of causality is far more plausible than the latter, but they acknowledge that existing empirical research is almost entirely cross-sectional and correlational in nature. As a result, their important question remains unanswered; we refer to this as the “chicken-and-egg problem” in political neuroscience.

Hibbing and colleagues assume that psychological and physiological responses are relatively stable over time, and so they must give rise to political ideology. This is certainly one possibility, but it seems more likely to us that ideological differences in neurocognitive structure and functioning reflect a constellation of social and psychological processes that unfold over time and give rise to the expression of beliefs, opinions, and values. Ideology, in other words, results from an “elective affinity” between the socially constructed, discursive elements of a belief system and the underlying needs, motives, and interests of individuals and groups who seek out and embrace those elements (e.g., see Jost, Federico, & Napier, 2009).

Therefore, we are not as dismissive as Hibbing and colleagues are of the possibility that “political attitudes [could] shift a person’s general emotional dispositions” (p. 27; see also Inbar, Pizarro, & Bloom, 2009). We believe that general ideological postures, if they are consistently adopted, could shape psychological and physiological characteristics as well. For the time being, however, existing research—including that reviewed by Hibbing et al. (in press)—simply does not allow us to determine whether (a) individual differences in brain structure and function bring about divergent ideological preferences, as the authors contend, and/or (b) the adoption of specific ideologies leads individuals to think in certain ways, causing our brains to process information differently.

While it is common to assume that chicken-and-egg problems such as this one possess a single (unidirectional) solution, for the time being we favor a dynamic, recursive theoretical framework in which the connection between physiological (and psychological) functioning and ideological preferences is conceived of as bidirectional. Recent work suggests, for instance, that compassion training may alter neural responses in the anterior insula and anterior cingulate—brain regions that are associated with empathy in response to the pain of others (Klimecki, Leiberg, Ricard, & Singer, 2013). Research of this kind may be more relevant to political psychology than it seems at first blush, given that differences between liberals and conservatives have been observed with respect to empathy (McCue & Gopoian, 2001) as well as grey matter volume in these specific regions.

Furthermore, there is growing neuroscientific evidence that experience can alter grey matter volume—i.e., basic anatomical structure. Woollett and Maguire (2011), for example, showed that men who complete a 4-year training program to become London taxi drivers exhibit increased grey matter volume in the posterior hippocampus along with significant changes in memory. Although some reservations about this study and others have been expressed (Thomas & Baker, 2012), animal studies demonstrate that the brain can change drastically in response to experience and training (Fu
Tackling the chicken-and-egg problem should be a top priority for the fledgling field of political neuroscience (see Jost & Amodio, 2012). It will require a judicious admixture of prospective, longitudinal methods (Block & Block, 2006; Fraley, Griffin, Belsky, & Rosiman, 2012) and experimental investigations of specific causal mechanisms. We envision a multi-methods approach that may involve not only Magnetic Resonance Imaging (MRI) and electroencephalography (EEG) but also transcranial magnetic stimulation, direct administration of neuromodulators, and research involving patients with brain lesions. Methods such as these are necessary to test dynamic theories of causation and, ultimately, to resolve the chicken-and-egg problem. This work has the potential to elucidate not only the specific neural pathways that underlie political attitudes and behavior; it may also challenge longstanding assumptions about the stability of both biological and ideological processes.

References (APA)


