Biological Psychiatry: CNNI

Commentary

Integration of Equity and Diversity Frameworks to Advance Biological Psychiatry

Maria M. Arredondo, Luz M. Garcini, and Katie A. McLaughlin

Environmental experiences play a powerful role in shaping mental health across the life course. Exposure to trauma, socioeconomic disadvantage, and other forms of chronic stress and adversity are associated with elevated risk for multiple forms of psychopathology throughout development. Biological psychiatry research has revealed that alterations in brain structure and function are key mechanisms through which adverse environmental experiences contribute to the emergence of psychopathology. Characterizing the neurobiological pathways that underlie the links between adverse experiences and the onset of mental disorders is an active and burgeoning area of research.

Some of the neurobiological mechanisms linking adversity with psychopathology are likely to be universal or shared across different types of adverse experiences—such as changes in the regulation of the hypothalamic-pituitary-adrenal axis. Other aspects of neurobiological function appear to be influenced differentially by distinct types of adverse environmental experiences. For example, early-life experiences of threat and deprivation have been associated with changes in brain structure and function that are at least partially distinct (1). The heterogeneous and multifaceted nature of the neurobiological processes influenced by stress and adversity highlights the importance of developing conceptual models that link particular dimensions of environmental experience with specific domains of neurobiological function to guide empirical research.

One area where theoretical frameworks and empirical evidence remain largely absent in biological psychiatry relates to experiences of discrimination, stigma, and oppression. These experiences are common among individuals from historically marginalized racial and ethnic groups, those who identify as lesbian, gay, bisexual, transgender, and queer (LGBTQ+), in people with disabilities and mental health problems, and as a function of other stigmatized and intersectional identities. Stigma encompasses interpersonal experiences, such as discrimination and microaggressions, as well as societal structures and policies that constrain the rights of stigmatized groups. Although these experiences are linked to increased risk for psychopathology, the neurobiological mechanisms that underlie these associations remain largely unknown. Recent work suggests that experiencing racial discrimination is associated with elevated neural responses to threat (2) and that living in a context characterized by higher levels of structural stigma toward one's identity is associated with changes in hypothalamic-pituitary-adrenal axis function (3) and reductions in hippocampal volume (4), demonstrating a neurobiological imprint of stigma at both interpersonal and structural levels. Empirical research on the neurobiological mechanisms linking stigma, discrimination, and social inequality with psychopathology is critical not only for informing assessment and intervention but also to provide insights into social determinants of neurobiological functioning.

Importantly, the investigation of neurobiological mechanisms linking adversity with psychopathology should not be mutually exclusive from the study of resilience and factors that promote well-being in those who encounter adversity. Focusing only on the negative consequences of adversity limits the knowledge that can be gained from the complex interplay between environmental experience, neurobiology, and mental health. Current research on resilience in biological psychiatry has focused largely on neurobiological factors associated with the absence of psychopathology in the face of trauma and adversity. For example, children who have greater behavioral and neural sensitivity to reward (5) and who engage prefrontal regions to modulate amygdala responses to threat are less likely to develop depression after experiencing maltreatment (6). Equally important to the study of resilience is the identification of protective factors at other levels of influence, including cultural and contextual factors that can facilitate adaptive neurobiological function and development over the life course. For instance, forming a positive view of one's ethnic-racial identity is associated with better mental health and academic success (7) and reduces the association of adverse experiences with diurnal cortisol rhythms (8) in ethnic and racial minority youth. Children as young as 5 years of age express positive and negative emotions regarding their ethnic-racial background (9), suggesting a window in early life when socialization practices might lay a foundation for future adaptation and resilience in the face of adversity.

The integration of cultural and contextual sources of risk and resilience into existing frameworks of environmental experiences and neurobiology will provide a more holistic understanding of the emergence of psychopathology across development. Such frameworks can build on substantial existing knowledge in sociology, social work, and public health on political, economic, historical, and cultural structures that allocate resources for some and limit opportunities for others. Biological psychiatry has a clear role to play in advancing such efforts and charting the pathways through which social and cultural structures influence neurodevelopmental processes in ways that contribute to psychopathology and health disparities. Aiming for a broader multifactorial, multilevel contextualization of the many environmental influences that shape neurodevelopment is needed to increase the effectiveness

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of interventions that can build resilience and empower communities that have a history of discrimination, stigma, and oppression.

Beyond lacking conceptual frameworks linking discrimination and stigma with psychopathology, biological psychiatry research frequently relies on convenience samples with overrepresentation of individuals from White, middle, or high socioeconomic backgrounds, and Western cultures that do not reflect the diverse sociodemographic characteristics of the U.S. population. The study of adverse environmental experiences—such as those stemming from discrimination, stigma, and oppression—requires that efforts be made to achieve greater representation and inclusion of communities that disproportionately encounter these experiences. A growing body of evidence shows that lack of attention to cultural factors and contextual experiences limits understanding of individual differences in development and psychopathology (10). Ignoring the influence of discrimination, stigma, and disadvantage on neurobiological functioning can lead to biased assessments, ineffective interventions, and inadequate practices that lack validity and have the potential to increase harm, oppression, and marginalization. Nonetheless, the recruitment and retention of participants from diverse backgrounds is not an easy task and requires the use of intentional sampling strategies and community outreach efforts. In a recent article, we outline salient barriers at the intrapersonal, interpersonal, community, and structural levels that researchers may encounter in the recruitment of diverse samples and provide concrete recommendations to overcome these barriers at each level of the research process (10). Some examples include incorporating strength-based frameworks into study designs; using community-based participatory research methods to develop community collaborations, build trust, and diversify samples; and prioritizing ongoing engagement with the community once a study has ended to build lasting partnerships and to promote continued collaboration.

Moving forward, biological psychiatry has an important role to play in reducing inequity, oppression, and marginalization. Essential to advance the field is the development and use of theoretical frameworks that facilitate the study of a broader range of adverse environmental experiences—particularly those stemming from discrimination, stigma, and oppression—along with models that integrate cultural and contextual sources of both risk and resilience. Developing a better understanding of how environmental experiences and social structures influence neurobiological functioning, development, and mental health is needed to reduce disparities and inequities as well as their detrimental consequences. The tools exist to advance the field toward greater equity and inclusiveness. What remains to be seen is whether we have the collective will to make this a reality.

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Article Information

From the Department of Human Development and Family Sciences (MMA), The University of Texas at Austin, Austin, Texas; Department of Psychological Sciences (LMG), Rice University, Houston, Texas; and the Department of Psychology (KAM), Harvard University, Cambridge, Massachusetts.

Address correspondence to Katie A. McLaughlin, Ph.D., at kmclaughlin@fas.harvard.edu.

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