How can more complex understandings of Neurodevelopmental and Psychiatric Disorders as implicating Neuro-Immune, Neuro-Endocrine and Microbiota-Gut-Brain Pathways substantially change how Societies view the challenge in Justice-Involvement and Homelessness?

More complex **biopsychosocial** views can recast **justice-involvement** and **homelessness** as health-system challenges, not just moral or criminal failings.

The evidence here supports three linked shifts: how society explains these disorders, how it interprets justice-involvement and homelessness, and how it designs responses.

Disorder Models

Neurodevelopmental and psychiatric disorders increasingly appear to involve **multisystem pathways** rather than isolated brain defects, including immune, endocrine, neural, and microbial signaling (Volpedo et al., 2025; Bautista et al., 2025; Ge et al., 2021; Góralczyk-Bińkowska et al., 2022). The microbiota–gut–brain axis is consistently described as bidirectional, with immune, endocrine/systemic, neuronal, and metabolic routes acting together (Wang et al., 2023; Cryan et al., 2019; Marano et al., 2025; Bautista et al., 2025). Chronic stress, gut dysbiosis, barrier dysfunction, cytokine signaling, HPA-axis dysregulation, and neuroinflammation are repeatedly implicated across depression, anxiety, schizophrenia, ASD, ADHD, PTSD, and related conditions (Anand et al., 2022; Zhou et al., 2025; Volpedo et al., 2025; Yassin et al., 2025).

- These disorders look less like **bad choices** and more like disorders of stress regulation and developmental vulnerability (Volpedo et al., 2025; Marano et al., 2025).
- Social adversity is biologically relevant because environmental stressors, diet, antibiotics, and early-life context shape the microbiota and stress systems (Cryan et al., 2019; Charitos et al., 2024; Marano et al., 2025).
- Evidence is still incomplete, and many mechanisms remain unresolved despite strong convergence on the overall multisystem model (Wang et al., 2023; Ge et al., 2021; Park et al., 2025).

Social Interpretation

If psychiatric and neurodevelopmental disorders are partly disorders of **immune stress biology** and developmental embedding, then justice-involvement and homelessness can be viewed less as simple noncompliance and more as downstream expressions of dysregulated cognition, affect, threat processing, and adaptive functioning (Dash et al., 2022; Charitos et al., 2024; Volpedo et al., 2025). The literature also emphasizes that socioeconomic context itself can disrupt neurodevelopmental processes, making social deprivation part of pathogenesis rather than merely background circumstance (Volpedo et al., 2025; Cryan et al., 2019; Bautista et al., 2025).

- This framework can reduce **moral blame** by treating instability and dysregulation as biologically embedded responses to adversity (Bautista et al., 2025; Volpedo et al., 2025).
- It also argues against narrow brain-only or punishment-only models, because gut, immune, endocrine, and barrier processes are part of the same clinical picture (Park et al., 2025; Anand et al., 2022; Marano et al., 2023).
- The evidence does not show that these pathways uniquely explain justice-involvement or homelessness; it supports a broader reconceptualization of vulnerability and chronic impairment (Dash et al., 2022; Charitos et al., 2024; Zhou et al., 2025).

Response Implications

Because these disorders are increasingly framed as **modifiable multisystem conditions**, the literature points toward integrated responses that combine psychiatric care with nutrition, sleep and circadian stabilization, stress reduction, gastrointestinal care, and potentially microbiota-targeted interventions (O'Riordan et al., 2025; Bautista et al., 2025; Dziedziak et al., 2025; Charitos et al., 2024).

- Promising adjuncts include probiotics, prebiotics, diet change, and fecal microbiota transplantation, though evidence is still emerging and precision approaches are not yet routine (Anand et al., 2022; Yassin et al., 2025; Zhou et al., 2025).
- Personalized care is emphasized because microbiome and immune profiles differ across individuals and disorders (Park et al., 2025; Charitos et al., 2024; Marano et al., 2023).
- For societies, that means shifting investment from primarily coercive management toward **housing, trauma-informed care, and developmental support** aligned with biological vulnerability, even though these exact service models were not directly tested in the supplied papers.

Taken together, more complex neuro-immune, neuro-endocrine, and microbiota–gut–brain models support viewing justice-involvement and homelessness less as failures of character and more as manifestations of **multisystem vulnerability** shaped by biology and adversity.

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