# Is Traditional Mental Health Care Competent to address Neurodevelopmental and Psychiatric Disorders as Developmental, Heterogeneous, Multi-System Neuro-Immune Conditions?

No, **traditional mental health care** is **not fully competent** to address neurodevelopmental and psychiatric disorders as multi-system neuro-immune conditions, though the field is actively evolving.

**Is traditional mental health care competent to address neurodevelopmental and psychiatric disorders as developmental, heterogeneous, multi-system neuro-immune conditions?**
Requires at least 5 papers that directly answer your question. Try adjusting your query to find more papers.

FIGURE 1 Research consensus on traditional mental health care competence for neuro-immune disorders

Traditional categorical diagnostic systems fail to capture the widespread co-occurrence, within-disorder heterogeneity, and shared biological underpinnings that characterize neurodevelopmental and psychiatric conditions (Michelini et al., 2024). These systems do not provide effective tools for recognizing subthreshold but impairing presentations, and they fragment care for individuals with multi-morbidity (Michelini et al., 2024; Ogundele & Morton, 2022; Bertollo et al., 2025). Current diagnostic frameworks often treat comorbidities separately, leading to **fragmented care** rather than holistic intervention (Bertollo et al., 2025).

## Evidence on Traditional Care Limitations

| Evidence Strength | Claim |
|---|---|
| Strong | Categorical diagnostic systems fail to account for **co-occurrence and heterogeneity** across neurodevelopmental and psychiatric conditions, creating barriers in both research and clinical treatment planning (Michelini et al., 2024; Louveau et al., 2023) |
| Moderate | Traditional psychiatric care lacks **mechanism-based immune treatments** and reliable biomarkers, relying on single-organ, single-disorder models rather than multi-system neuro-immune frameworks (Pape et al., 2019; Nusslock et al., 2024; Bennett & Molofsky, 2019) |
| Moderate | Fragmented service delivery across paediatrics, psychiatry, and neurology leaves children with **multi-morbidity** inadequately served by any single professional group (Ogundele & Morton, 2022; Bertollo et al., 2025; Ogundele & Morton, 2022) |

FIGURE 2 Evidence strength for claims about traditional care limitations

## Neuro-Immune Mechanisms Demanding New Frameworks

The immune system is now recognized as deeply involved in normal brain development, with innate immune cells — particularly microglia — sculpting neural circuitry and coordinating neurodevelopmental processes (Zengeler & Lukens, 2021; Anderson et al., 2025; Martino et al., 2020). Disruption of immune signaling during prenatal or perinatal periods can alter synaptic pruning, excitatory-inhibitory balance, and neural circuit maturation, contributing to conditions ranging from autism to schizophrenia (Leisman et al., 2026; Zengeler & Lukens, 2021). These pathways — including microglial activation, pro-inflammatory cytokines, blood-brain barrier disruption, and molecular mimicry — are shared across disorders traditionally classified as distinct (Pape et al., 2019; Gagliano et al., 2023; Bertollo et al., 2025).

Maternal immune activation during pregnancy is a well-established risk factor for neurodevelopmental disorders, with epidemiological evidence linking prenatal infection, autoimmunity, and environmental inflammatory triggers to offspring ASD, schizophrenia, and other conditions (Zengeler & Lukens, 2021; Gagliano et al., 2025; Martino et al., 2020). This supports a **multiple-hit hypothesis** in which early immune perturbations prime the system for later dysfunction triggered by additional environmental or genetic insults (Gagliano et al., 2025; Zengeler & Lukens, 2021).

## Heterogeneity and Transdiagnostic Gaps

- Neurodevelopmental disorders exhibit substantial **phenotypic overlap** with adult psychiatric conditions, with the same genes coding for different diseases across the lifespan — "the genes have not read the DSM" (Louveau et al., 2023; Diao et al., 2026; Bertollo et al., 2025).
- Machine learning identifies **three immunologically distinct clusters** within neurodevelopmental disorders — defined by enhanced neurogenesis, Th-1 polarization, or IL-1 signaling — suggesting qualitatively different immune subgroups that demand stratified treatment (Sreenivas et al., 2023).
- Sex differences in prevalence and symptomatology of ASD and ADHD are prominent, and the **immune system's role** in shaping sex-specific neurodevelopmental trajectories remains underexplored in traditional models (Breach & Lenz, 2022).
- Immunogenetic variants across bipolar disorder, depression, schizophrenia, ASD, and ADHD produce chronic low-grade inflammation in subgroups, contributing to **treatment resistance** and progressive functional decline that conventional psychiatric care does not address (Clerc et al., 2026).

## Emerging Integrated Care Models

The emerging field of **immunoneuropsychiatry** calls for combined expertise from neurologists and psychiatrists to identify pathogenically related subgroups and develop mechanism-based immune treatments (Pape et al., 2019). Neuroimmune network models propose that therapeutic change in one system — such as reducing inflammation — should produce cascading benefits across other systems, enabling multi-target interventions rather than single-mechanism approaches (Nusslock et al., 2024). Integrated care organized as a **neurodevelopmental hub** bringing together paediatric, psychiatric, and allied health expertise has been advocated as optimal for addressing the bio-psycho-social complexity of these conditions (Ogundele & Morton, 2022).

Transdiagnostic dimensional frameworks — including the Hierarchical Taxonomy of Psychopathology and the Research Domain Criteria — offer alternatives to categorical classification by providing empirically-based models that account for shared underpinnings and developmental continuity across conditions (Michelini et al., 2024). Incorporating a neurodevelopmental spectrum into these frameworks could transform assessment and clinical practice by providing a fuller view of an individual's needs and strengths than diagnostic categories allow (Michelini et al., 2024). Nevertheless, significant gaps remain in translating these diagnostic insights into clinical practice, with barriers including delayed diagnoses, lack of access to genetic counseling, and persistent disciplinary fragmentation (Bertollo et al., 2025; Anderson et al., 2025).

Traditional mental health care, structured around categorical diagnoses and single-organ treatment models, is not yet competent to address the developmental, heterogeneous, multi-system neuro-immune nature of these conditions. The literature converges on the need for transdiagnostic, multi-disciplinary, mechanism-based frameworks to close this gap.



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