

REVIEWER'S REPORT

Manuscript No.: JNHM-142

Title: AYURVEDIC UNDERSTANDING AND HOLISTIC MANAGEMENT OF AUTISM SPECTRUM DISORDER: A REVIEW.

Recommendation:

Accept after minor revision.....

Rating	Excel.	Good	Fair	Poor
Originality			✓	
Techn. Quality			✓	
Clarity		✓		
Significance	✓			

Reviewer's ID: JPR-Bilqees Hamza

Detailed Reviewer's Report

Overview

The manuscript titled “*Ayurvedic Understanding and Holistic Management of Autism Spectrum Disorder: A Review*” offers a comprehensive, timely, and conceptually rich synthesis that bridges traditional Ayurvedic psychiatry with contemporary neurodevelopmental biomedicine. The authors address Autism Spectrum Disorder, an increasingly prevalent and lifelong neurodevelopmental condition characterized by persistent deficits in social communication and restricted, repetitive behavioral patterns. By framing the complex and multifactorial etiology of this condition within the classical Ayurvedic paradigm of *Unmada* (generalized perversion of mental faculties), the review introduces a structured alternative to standard symptomatic pharmacotherapies, which frequently present challenging adverse profiles and fail to resolve core neurodevelopmental deficits.

The primary scholarly contribution of this work lies in its detailed mapping of the pathological cascade from both ancient and modern viewpoints. Rather than treating the classical descriptions of *Unmada* and modern neurobiology as completely separate ideas, the manuscript identifies a clear conceptual convergence between the traditional theory of *Agnimandya*-induced *Ama* (metabolic endotoxins) and the modern scientific understanding of the microbiota-gut-brain axis and leaky gut syndrome. This framework recontextualizes gut dysbiosis and systemic neuroinflammation as modern counterparts to the obstruction of *Manovaha Srotas* (mental channels) by deep-seated metabolic toxins. Consequently, the paper provides a strong theoretical basis for using multi-modal Ayurvedic interventions—specifically

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combining *Shodhana* (purification), *Medhya Rasayanas* (nootropic formulations), and *Satvavajaya Chikitsa* (behavioral and psychological therapies)—to manage a complex condition that lacks definitive disease-modifying options in mainstream conventional medicine.

Technical Strengths and Scholarly Merit

The structural design of this narrative review demonstrates a clear and logical sequence, moving smoothly from epidemiological parameters to detailed therapeutic protocols. Following the SANRA guidelines ensures the narrative remains methodical. The authors draw from a wide range of databases, including PubMed, Scopus, Google Scholar, DHARA, and the AYUSH Research Portal, which gives the literature search strong credibility. The introductory compilation of global prevalence rates—ranging from 0.77% to nearly 2%—effectively establishes the significant socio-economic and clinical importance of improving management strategies for this condition.

A major strength of the paper is the detailed construction of the *Samprapti* (pathogenesis) flowchart and the breakdown of the *Samprapti Ghatakas* (components of pathogenesis). The authors systematically analyze how *Sahaja* (genetic/hereditary) vulnerabilities lay a foundation of *Alpa Satva* (low psychological resilience) and *Utsanna Dosha*. This baseline vulnerability is then triggered by *Garbhaja* (intrauterine/antenatal) and *Agantuja* (postnatal) environmental factors. This comprehensive model aligns well with modern polygenic and epigenetic models of autism.

Furthermore, breaking down the *Sharirika Doshas* into functional subtypes—such as *Prana Vata* governing sensory inputs, *Udana Vata* regulating speech, *Vyana Vata* managing motor coordination, *Sadhaka Pitta* balancing emotional intellect, and *Tarpaka Kapha* ensuring neural stability—shows a deep and accurate grasp of classical Ayurvedic physiology. The discussion section is also highly detailed, clearly explaining how localized gut inflammation and increased mucosal permeability (*leaky gut*) allow macro-molecules and lipopolysaccharides to enter the bloodstream, ultimately crossing the blood-brain barrier to trigger neuroinflammation and alter behavior.

Recommendations for Comprehensive Revision

While the manuscript possesses significant scholarly merit, several critical citation misalignments, typographical errors, and textual inconsistencies must be addressed to bring the text up to publication standards.

Textual and Historical Document Alignment

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The first recommendation involves verifying historical attributions within the classical literature. In the discussion section regarding *Shamana* therapy, the text asserts that the four primary *Medhya Rasayana* herbs described in the *Charaka Samhita* are *Brahmi* (*Bacopa monnieri*), *Mandukaparni* (*Centella asiatica*), *Shankhapushpi* (*Convolvulus pluricaulis*), and *Yastimadhu* (*Glycyrrhiza glabra*). However, a precise reading of the *Charaka Samhita* (Chikitsa Sthana, Chapter 1:3) reveals that the classic four *Medhya Rasayanas* explicitly listed by Acharya Charaka are the juice of *Mandukaparni*, the powder of *Yastimadhu*, the juice of *Guduchi* (*Tinospora cordifolia*), and the paste of *Shankhapushpi*. *Brahmi* is an exceptionally vital nootropic herb widely utilized across neurodevelopmental conditions, but substituting *Guduchi* with *Brahmi* while attributing the specific quartet directly to Charaka's text is historically inaccurate. The authors must revise this passage to preserve textual accuracy, perhaps noting that while *Brahmi* is a premier *Medhya* drug validated across multiple contemporary studies, Charaka's original formulation specifically highlighted *Guduchi*.

Technical Citation Verification

The second recommendation targets a series of significant citation mismatches in the text that distort the referenced evidence. In the section detailing the Ayurvedic framework of *Unmada*, the text states that a systematic review confirms the equivalence of *Unmada* with psychosis, citing reference eighteen. However, checking the reference list shows that reference eighteen is the *Sushruta Samhita, Uttara Tantra, Chapter 62*, which is an ancient classical compendium rather than a modern systematic review. The actual systematic review on the role of Ayurveda in psychotic disorders appears to be reference seventeen.

Similarly, in the results section, the authors state that a registered randomized controlled trial on *Brahmi Swarna Yoga* (CTRI/2022/04/041706) is currently ongoing, citing reference twenty-nine. Looking at the reference list reveals that reference twenty-nine is the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*, which has no connection to Indian clinical trial registries. The correct reference for the *Brahmi Swarna Yoga* trial protocol is actually reference twenty-seven. These technical errors disrupt the integrity of the academic apparatus. The entire bibliography and all in-text citations must be thoroughly cross-checked and realigned.

Structural Formatting and Layout Refinements

The third recommendation concerns structural formatting and text errors within the tables. In Table 1, under the *Sharirika Dosha* component, there is an evident text layout error where the string reads "Pitta (Sadhaka, Alochaka); (Sadhak" and cuts off, while the adjacent rationale cell blends different functional definitions into a dense block. The authors should cleanly format these cells to ensure terms are not cut off.

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Additionally, Table 2 contains several missing spaces between running words, resulting in broken strings such as "preventsfurther", "Eliminatesvitiated", "ManovahaSrotas", and "KalyanakaGhrita". Similar compounding issues appear throughout the main narrative, including "ManovahaSrotas" in multiple lines, "Garbhaja(intrauterine)insults", "Bacopamonniери", "Centellaasiatica", "UrdhwaJatrugata", and "placebocontrolled". The entire manuscript requires thorough proofreading to correct these spacing and typographical inconsistencies.

Methodological and Epistemological Clarity

The final recommendation addresses a conceptual tension between the abstract, the results, and the discussion. The abstract and introduction emphasize that Autism Spectrum Disorder is correlated with *Tridoshaja Unmada*. However, the case studies cited later in the text explicitly focus on *Vatakaphaja Unmada* when tracking improvements in patient scores. Given that Vata regulates motor and sensory impulses while Kapha governs stability and behavioral processing, a dominant *Vatakaphaja* presentation makes clinical sense for many core autism symptoms. The authors should expand their discussion to clarify this distinction, explaining that while autism falls under the broad category of *Tridoshaja Unmada*, individual clinical presentations often show a dominant *Vatakaphaja* or *Vatapittaja* pattern that requires personalized treatment.

Final Review Conclusion

"Ayurvedic Understanding and Holistic Management of Autism Spectrum Disorder: A Review" is a well-conceptualized and highly valuable piece of work. It successfully establishes a rational, step-by-step framework connecting classical Ayurvedic concepts of digestion and mental channels with modern gut-brain axis research. The multi-modal treatment strategy presented—spanning dietary adjustments, detoxification, nootropic herbs, and behavioral therapies—offers a promising, comprehensive model for managing this complex neurodevelopmental condition.

The current presentation issues, citation mismatches, and minor textual inaccuracies do not undermine the core scientific value of the review. These problems can be resolved by correcting the classical attributions, realigning the references, and cleaning up the table formatting. This precision will significantly improve the paper's readability and professional impact. Therefore, this manuscript is recommended for publication subject to Minor Revision.