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Peer Review

Review of: "The Polyvagal Theory in Contemporary Psychology: Why Popularity Should Not Be Confused with Scientific Validity"

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I thank the platform for the opportunity to review this paper and for allowing me to contribute to advancing a more ethical and scientifically grounded academic field.

The topic is interesting, and I recognize that, given the author's profile, the manuscript also has a clear divulgative aim. However, this aim should be more clearly defined and must adhere to the principles of evidence-based medicine. Given Prof. Porges's very thorough review, I will not go into further detail, as I strongly support his suggestions, edits, and improvements already highlighted.

Nonetheless, there are fundamental gaps that must be addressed for the manuscript to meet publication standards.

1) Structure

What kind of study is this? I cannot determine this from the title. Methods must always be disclosed, and this must also be reflected rigorously in the title. Also, after a first reading, I was lost in such an endless discussion section. What are the research questions, the hypotheses? Also, I would recommend adding a final ethical section.

Please also reshape the title in a less hyped, more professional tone.

2) Methodology

It is not clear whether the manuscript is intended to be a literature review or a conceptual paper. As

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mentioned, methods must always be disclosed and replicable. In either case, it should adhere to current methodological recommendations and guidelines (e.g., Paré G, Kitsiou S. Chapter 9 Methods for Literature Reviews. In: Lau F, Kuziemsky C, editors. *Handbook of eHealth Evaluation: An Evidence-based Approach* [Internet]. Victoria (BC): University of Victoria; 2017 Feb 27. Available from: https://www.ncbi.nlm.nih.gov/books/NBK481583/).

My suggestion would be to adopt a cautious approach.

Writing a monograph without support from randomized controlled trials, systematic reviews, or meta-analyses does not represent an academically robust way to produce new knowledge. Additionally, the tools used (e.g., MedBase) must be mentioned.

Also, I would add a table listing all the papers mentioned in a clear order (Conceptual? Methodological?) to better visualise and understand this paper's first section.

3) Content

I agree that a purely reductionist, anatomical understanding of neuroscience is outdated. Contemporary perspectives increasingly emphasize embedded sciences and dimensional approaches, while still preserving the paramount importance of neuroanatomy. Notably, more than 20 years ago, monographic works already existed, often authored by skull-based neurosurgeons, who, as pioneers in "exploring" the brain, made significant efforts to apply, for example, VSP stimulation, including in the context of psychiatric disorders (Rzesnitzek L, Hariz M, Krauss JK). *Psychosurgery in the History of Stereotactic Functional Neurosurgery*. *Stereotact Funct Neurosurg*. 2020;98(4):241–247. doi: 10.1159/000508167. Epub 2020 Jun 29. PMID: 32599586; PMCID: PMC7592934).

4) Interventional psychiatry and contemporary evidence-based developments

In contrast to the largely speculative application of Polyvagal Theory discussed in the manuscript, it is important to acknowledge that a growing, well-defined field of interventional psychiatry is currently providing substantial, increasingly robust empirical evidence. I would therefore suggest explicitly introducing this field in the introduction (section to be rewritten from scratch and implemented) and situating the manuscript within a broader, more contemporary framework of neuromodulation-based interventions. Furthermore, the discussion section would benefit from a more comprehensive and balanced treatment of interventional methods, expanding beyond theoretical models to include clinically validated approaches. Notably, interventional psychiatry has recently been recognised as a medical subspecialty in several countries, reflecting its maturation and growing relevance within evidence-based

clinical practice (Sabé et al., 2023). To support that, these therapeutic procedures are also reimbursed by medical insurance in different countries, and to a promising extent.

5) Citations: Need for scientific rigor and avoidance of reliance on self-citation

While it is commendable to acknowledge one's own publications, this should be done in an academically professional and sober manner. Forcing theoretical interpretations in order to extrapolate a theory does not constitute scientific autonomy and, particularly within my field of expertise, does not represent an ethical or deontological approach to expanding our collective knowledge base.

In summary, I acknowledge the author's intuition and encourage further development of the proposed ideas. I strongly recommend incorporating contributions or perspectives from professionals with different backgrounds (e.g., neurosurgeons or interventional psychiatrists) to enhance the manuscript's scientific consistency. However, in its current form, the paper should be returned to the author, and I do not support its publication at this stage.

Declarations

Potential competing interests: No potential competing interests to declare.