

## Psychosis Resulting From Herbs Rather Than Nutrients

**To the Editor:** The very useful case report by Wong et al<sup>1</sup> illustrates the potential harm of psychosis resulting from concurrent administration of over 50 ingredients, including 18 unregulated herbal agents, 19 digestive enzymes, 6 probiotic strains, and other over-the-counter substances. This is a valuable cautionary message, but the title and abstract lead readers astray. Instead of using specific language to identify the offending agents as herbs, the authors use the general term *dietary supplements*, an erroneous rubric often used in marketing herbs. By publishing evidence for an adverse herbal interaction with the term *dietary supplements*, this article inadvertently leads readers (many of whom read only the title and abstract) to believe that this case demonstrates harm from consumption of nutrients fundamental for human health.

Without careful reading of the full text and Table 1, readers will not recognize that only 4 of the > 50 ingredients this patient consumed were minerals or vitamins (chromium, vitamin B<sub>6</sub>, folate, vitamin B<sub>12</sub>). And, given that the patient's B<sub>12</sub> levels, when tested, were in the low normal range, resulting in treatment with cyanocobalamin 1,000 µg, there is good reason to suspect that even these few nutrients were not very bioavailable or had trivial physiologic impact.

It is unlikely that the patient's psychosis resulted from the direct or combined effects of minerals, vitamins, enzymes, or probiotics. Rather, it is most likely that the patient's physical and mental impairments resulted from the concurrent use of 18 botanicals, each with its own complex, nonspecific, and largely unmapped pharmacologic actions.

Humans have evolved to need dietary nutrients such as minerals and vitamins for the function of every mitochondrion (and hence every cell) of our brains and bodies. In contrast, there is no evidence of evolutionary need of herbs. In fact, physiologically active herbs could be more accurately described as crude drugs that have been misclassified as dietary supplements (eg, St John's wort, tobacco, marijuana, coca leaf, and poppies are plant parts with psychoactive chemicals).

The signatories to this letter have contributed to the rapidly growing empirical literature demonstrating mental health benefits from nutrients (not herbs)<sup>2-8</sup> as well as establishing safety of these nutrients,<sup>9</sup> even when multiple nutrients are used in combination. It concerns us that the nonspecific use of the term *dietary supplements* could prejudice interpretation of the scientifically valid studies on nutritional approaches to treating psychiatric conditions. In addition to our own work, there is a large literature supporting the association between dietary patterns and mental health in population studies,<sup>10</sup> and a new international society of scientists has formed to study this area (International Society for Nutritional Psychiatry Research; ISNPR.org).<sup>11</sup>

If the title and abstract of the report had accurately specified that it was primarily about the risk of the concurrent use of multiple unregulated botanical substances, there would be no confusion. Given the present situation, we respectfully ask that a correction be issued.

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## Dietary Supplement Nomenclature

**To the Editor:** We very much appreciate Arnold and colleagues' letter<sup>1</sup> and their thoughtful suggestions. The case report by Wong et al<sup>2</sup> carefully addressed the concerns regarding nomenclature of supplements as well as the governmental regulations regarding advertising of these increasingly used products. The discussion section emphasizes the need to include the physician's knowledge and involvement in using medical supplements. Furthermore, the terms *supplement* and *dietary supplement* are correctly used in the report and are based on the US Food and Drug Administration (FDA) definition from the FDA Web site.<sup>3</sup> The definitions used are also in consensus with major dictionaries.<sup>4,5</sup>

It is worth noting that the term *dietary supplement* was defined by the Dietary Supplement Health and Education Act as "a product (other than tobacco) intended to supplement the diet that bears or contains 1 or more of the following dietary ingredients: (a) a vitamin, (b) a mineral, (c) an herb or other botanical, (d) an amino acid, (e) a dietary substance for use by man to supplement the diet by increasing the total dietary intake, or (f) a concentrate, metabolite, constituent, extract, or combination of any ingredient described in clause (A), (B), (C), (D), or (E)."<sup>6</sup>

The comments of Arnold et al<sup>1</sup> are valid and should spark further discussion about this very important and somewhat controversial topic. We believe that the supplement market has little regulatory intervention with significant potential for confusing patients about the real benefits of the products marketed. In addition, the dietary supplements marketed may even cause harm to the consumer due to the aggressive marketing of over-the-counter supplements with unproven benefits and underresearched side-effect profiles. The sincere hope is that our case report as well as the discussions that

will arise from other scientists and health professionals' comments will increase awareness of the emergent need for further research and clear labeling of such products.

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