Reviewer's report

Title: An analysis of online messages about probiotics

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Reviewer: Levinus L.A. Dieleman

Reviewer's report:

This manuscript examines a sample of 72 websites presenting information about probiotics. Online searches were completed using two popular search engines—Google and Yahoo. The analysis was limited to the samples of the first 50 results of each search engine query. Subsequently the analysis was independently reviewed, a coding sheet was developed regarding quality, as well as the use of the validated Sandvik scale. Subsequently, descriptive statistics were examined using independent sample t-tests and Fisher’s exact tests. There were comparisons made between commercial and noncommercial websites. Commercial websites contained about 51% of the websites.

The authors found that there was a clear bias to presentation of therapeutic benefits over safety in commercial websites regarding probiotics. In addition, over 70% of commercial websites had to more information about a specific probiotic product. They concluded that many internet websites, especially commercial ones, contain unsubstantiated and misleading claims about the therapeutic benefits of probiotics and are suffering from a relative lack of information about the risks of using probiotics.

Strengths: Due to the lack of regulation on the use of probiotics by the Food and Drug Administration and the readily available internet information, patients with chronic gastrointestinal diseases typically rely on internet websites regarding the information usage efficacy and risks of probiotics. The authors should be applauded to take on this effort to systematically review these websites regarding their quality, which likely affects the usage of probiotics by patients. I consider this the major strength of this manuscript and I found the systematic analysis appealing enough to be read by a larger audience. In fact, it confirms our suspicions that commercial websites on probiotics are biased and frequently lack scientific rigidity on the benefits and the safety of probiotics. In addition, they are also found that these websites suggested the individuals such as patients and healthy individuals to consult a physician prior to using probiotics. This typically does not take place in real life. This underlines even more the necessity of providing adequate information on these websites, which is often lacking, and is commercially biased, confirmed by this study.

Minor concern:

On page 4, last sentence, the author stated that after two independent analysts coded websites for quality content, their respective scoring and code sheets were compared and used to establish a single consensus code sheet. The authors
need to provide Kappa scores to see how much agreement there was between the two independent analysts. This is important, especially as this parameter regarding quality scoring of the websites is the most important one in the manuscript

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare I have no competing interests.