Reviewer's report

Title: A Systematic Review on the Prevalence of Dietary Supplement Use by Military Personnel

Version: 2 Date: 31 December 2013

Reviewer: Wayne Jonas

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As there have been many surveys to assess the current use of dietary supplements in the military population, it is nice to see a paper that shares the majority of this work compiled in one piece to summarize the literature. There are some concerns that the reviewer has that are detailed below about the methodology, inclusion of some key publications, as well as the reporting of the results. In addition, the discussion needs more clear assessment about which studies are large and of high quality and so are important to emphasize rather than simply list the results of the combined studies. Overall, this is a useful summary of the literature that currently exists.

Major Compulsory Revisions

1. In the methods, the authors state that they searched PUBMED (MEDLINE), Ovid and the DTIC. I suggest the authors detail what databases were searched in Ovid. Ovid houses many search engines, such as PsycInfo, CINAHL, Medline, etc. As it is currently written, it is unclear what databases the authors searched. They also did not detail the inclusive dates that were searched, or up to what date they captured the literature. What did the search include and were there any limitations? Also, the keywords searched are a bit unclear as well. Did the authors search using MESH strategy? If not, there seems to be concern why some terms were chosen and not others. See MESH strategy under “military personnel” in MEDLINE to explore all the terms that map to military personnel that should have been included in the search. There is also concern about the DS string used to capture the DS’s. I am not sure this is comprehensive. For example, if the authors knew that sports drinks were highly prevalent, why is this not a search term? It is good custom to report the exact search string in any systematic review as well as a Flow Chart following PRISMA guidelines of inclusion/exclusion criteria and process so that your review can be transparent and reproducible.

2. In the results, for Table 1: it would be nice to see what multi-vitamin or multi-minerals were most prevalent rather than just reporting they took one (i.e. were they stated in the surveys which ones were most commonly being consumed?) Same with sports drinks or bars. Perhaps a table showing the most commonly used products?

3. Although there is mention that “Data were compiled by year to examine if any temporal trends could be discerned” there is no analysis of this in the results. This creates some concern with the meta-analysis and pooling of the data for
summary prevalence scores. Looking at the use of one supplement several years back may be something very different in present days use. I question the value of pooling this data without an analysis by trends. Also, how did the authors take into account if the same population was surveyed in different studies? Wouldn't this confound the results?

Minor Essential Revisions

4. The link to references #1 and 2 appear to be broken. I encourage the authors to also familiarize themselves with the 2011 FDA Draft Guidance on New Dietary Ingredients for use in Dietary Supplements to ensure they have captured and follow the definitions outlined in this report. I did not see this report in the list of citations. The authors in this report encourage other authors to follow the guidelines detailed in ref 2: The Dietary Supplement Health and Education Act of 1994. Are these different? Worth some investigation by the authors.

5. Another citation worth investigating that I did not see included is the following: Goertz C et al. Military report more complementary and alternative medicine use than civilians. J Altern Complement Med 2013; 19(6): 509-17. I would think this should be included in the summary and analysis as this is one of the largest comprehensive assessments to date.

6. It is unclear if the recent Institute of Medicine surveys on DS use and safety were included in this report or not. It would be a good idea to include them and also cite them throughout the report.

7. In the Introduction, the authors claim service members take DS for specific reasons, like enhancing physician endurance, resisting heat and cold, however, the largest and most comprehensive review is not cited (Goertz et al listed above in #5) and, when reasons were explored, the reported DS for performance, weight loss and pain, which are also reasons given by civilians. Can the authors better justify the difference in reasons for DS use between military and civilians?

8. While it is difficult to compare DS use of military to civilian populations, as the authors state (p. 13), it has been done reliably in the study by Bray and the Goertz et al cited above, which was the largest and more robust of the studies combined and adjusted use rates to differences between military and civilian populations. This should be noted in the discussion as pooling all the studies as they have done obscures the value of large, high quality, individual studies While some recent studies (published in the Annals of Internal Medicine, 2013) published recently, they should be noted and cited in the discussion on p. 14 or these comments are out of date and incorrect. See the following citations:


9. In the analysis, if there were more than one publication, how were all publications used? What were the methods to combine discrepancies?

10. How were the homogeneity scores used? If discrepancies were large, did that mean the studies were not combined?

Discretionary Revisions

1. There are several grammatical errors throughout the report.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests