Response to Alvarez et al.

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Alvarez *et al.*, who originate from various foundations for osteopathic medicine,[1] argued that our negative results[2] for the treatment of fibromyalgia (FM) by osteopathy "were expected due to the lack of rationale for evaluating the benefits of a single therapeutic approach," criticized our so-called "reductionist and biomechanical-based understanding of what constitutes osteopathy and osteopathic treatment," and assert that "osteopathic care of individuals with persistent physical symptoms, such as those with FM, should only be considered from a multimodal person-centered perspective." However, the arguments and criticisms they put forward are inaccurate or deceptive and completely unfounded.

Alvarez *et al.* claim that osteopathy now promotes a patient-centered or person-centered approach closely aligned with other physical techniques (gym, yoga, Tai chi, etc.) and with mainstream medicine given its Hippocratic roots.[3] However, the adoption of a person-centered approach does not mean that treatment should be considered a black box of multiple methods to be shaken before study and Alvarez *et al.*'s argumentation concerning the rationale of our study amounts to pure sophism, of the type Aristotle defined as *ignoratio elenchi*, in other words, missing the point.[4] As explained in our paper, we considered and tested the most specific feature of the osteopathic treatment of FM differentiating it most clearly from other physical treatments: the *manipulation* of spinal segments and large joints. It was precisely the objective of the experimental design adopted in this study (including sham manipulation) to disentangle the specific and distinctive effect of osteopathic manipulation from non-specific effects, which were not ignored in our study as suggested by Alvarez *et al.*, but *equalized* between the two treatment groups. Our results, indicating a lack of benefit of manipulation but a major effect of expectation, confirm the importance of the non-specific, mostly psychological, effects of osteopathic manipulation. We fully understand that osteopaths wish to make use of these effects, just as other medical practitioners (non-manual therapists) do. However, physicians, patients and the general population also need to know the real determinants of any effects observed and their relative contributions to treatment.

Alvarez *et al.* also criticized our assumption that patients with FM are "usually normally mobile or even hypermobile" and claimed that "the literature on FM does not mention hypermobility as a clinical feature," which is untrue. A recent systematic review and meta-analysis by Chen *et al.*[5] retained five studies, all reporting a positive association between FM and hypermobility. While it is true that not all the patients included in our study presented hypermobility, this feature had to be taken into account, together with "diffuse muscle tenderness and a low pain threshold" (the citation of our paper by Alvarez *et al.* was selective and misleading).

In their efforts to promote "individualized osteopathy" and a "more pragmatic attitude to treatment," Alvarez *et al.* cite a study by "Albers *et al.* [which] showed positive effects from individualized osteopathic interventions when treating patients with FM. These findings were also supported by a recent systematic review [by Schulze *et al.*]." Unfortunately, the study by Albers *et al.*[6] is a small-scale randomized controlled study providing no evidence of a difference between the two modes of osteopathic treatment tested, and the systematic review by Schulze *et al.*[7] mentions only two studies addressing osteopathy, that of Albers and another study reporting negative results. There is, therefore, objectively, a lack of

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evidence in favor of "individualized osteopathy" in FM.

Finally, Alvarez *et al.* mentioned a systematic review on the effects of osteopathic treatment on psychosocial factors in people with persistent pain, by Saracutu *et al.*[8] However, this somewhat eclectic review included only two studies on FM patients, one of which reported negative results, the other being manifestly incorrectly controlled. The argument of Alvarez *et al.* therefore again misses the point, from two standpoints.

There is a broad consensus that FM treatment should be multimodal and person-centered. The real question is *which modes* of treatment should be retained, and, more particularly, is osteopathy one of them? Our study and the available evidence suggest that "no" is the only response that could reasonably be given for the time being.

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