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Constructing Scholarly Ethos in Non-mainstream Medical Research Writing: Discursive and Linguistic Strategies

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Abstract

At a time when mainstream, biomedical research and practice continue to frame the discourse about health, non-mainstream, or alternative/complementary medical research is now gaining ground in some academic publishing venues. While non-mainstream researchers are likely to work twice as hard to survive on a very uneven playing field, they must also develop rational appeals to believability in order to be persuasive in their own writing. In this chapter, I set out to explore the discursive and linguistic strategies employed by alternative/complementary medicine scholars to see how and to what extent they convey a scholarly ethos that entails building their own authority, credibility, and expertise and recognizing the values of their academic community. Taking a corpus-driven approach to academic articles in this field, I look at how authors project themselves and their work and persuade their audience about their arguments and perspectives in this form of writing. To do so, I rely on the cover term of evaluation in academic discourse analytical research to examine stance-making resources for their linguistic realization in both quantitative and qualitative terms and to identify the attendant meanings for interaction and persuasion that establish the writers' ethos on the topics they discuss. Conclusions are drawn about the relevance of such findings for discourse activities enacted by the non-mainstream academic community.

Keywords: Alternative and Complementary Medicine, Discourse Analysis, Evaluation, Stance, Genre

Introduction

Over the past twenty years, the use of a variety of interrelated treatment modalities has become a common standard in Western pluralistic healthcare systems, allowing people to choose both mainstream (biomedicine) and non-mainstream (alternative/complementary) systems and practices (Shih *et al.* 2010). While many studies agree that the popularity of alternative and complementary medicine is growing throughout the Western world, including

the US (Falci, Shi and Greenlee 2016), Australia (Wiese and Oster 2010), Canada (Kelner *et al.* 2006), and European countries (Busato *et al.* 2006), the presence of multiple therapeutic modalities is not without process-level systems and traditions characterized by opposition and naming.

When it comes to the naming process, the comprehensive term “complementary and alternative medicine”, or CAM, is often used to describe a complex system of healing practices and disciplines that fall outside of mainstream or conventional medicine. The US National Center for Complementary and Integrative Health (NCCIH 2024) describes the catch-all term, “complementary and alternative medicine” (CAM), as “a group of diverse medical and health care systems, practices, and products” that are either used “together with conventional medicine” (complementary), or “in place of conventional medicine” (alternative). Alongside this term, “Integrative Health” or “Integrative Medicine” is used to describe the practice that “brings conventional and complementary approaches together in a coordinated way” (NCCIH 2024 on “Integrative Health”), or “an approach to medical care that combines conventional medicine with CAM practices that have shown through science to be safe and effective” (National Institutes of Health – National Cancer Institute 2023, on “Integrative Medicine”). Regardless of the term employed, much of what we currently know about CAM is rooted in ancient healing philosophies, traditions and belief systems developing across different societies and cultures, where “magical or spiritual healing practices and herbal remedies are the oldest traditional systems of folk medicine” (Tessuto 2024, 2).

The emphasis placed on the very terms for naming “complementary”, “alternative”, or “integrative” suggests as much about the residual nature of CAM healing practices as about the dominant role played internationally by the model of “biomedicine” (Keating and Cambrosio 2003; Baronov 2008; Davies 2016). Recognition of this role not only hints at the dominant medical ideology that “represents an expression of social power” and “privilege within capitalist societies” (Baronov 2008, 235) in which it inherently “bears a distinct cultural authority” (Davies 2016, 71), but also naturally explains the evidence-based logic of biomedical sciences in defining medical care.

Given this role, controversy tends to dominate the public debate over CAM therapies. Here, biomedical practitioners could be anywhere “on the edge”, from rejecting non-mainstream medicine outright to accepting it to a greater or lesser degree (Grandinetti 2000; Beyerstein 2001), with decriers of CAM basing their arguments on Western biomedical notions of “truth” that satisfies the standards of scientific evidence treatment through “randomized controlled clinical trials and their meta-analyses” (Yakoot 2013, 83), therefore providing highly polarized viewpoints on CAM and biomedical knowledge. Despite this, there is a growing awareness that “evidence-based CAM therapies have shown remarkable success in treating diseases” (Adams *et al.* 2012, 3), meaning that non-mainstream (CAM) medicine is mature enough to gain from a good dose of empiricism (Mortada 2024, 1).

But such debate is not without a process of boundary division when it comes to demarcating “scientific”, evidence-based medicine from “unscientific” treatments. On this point, earlier studies in sociology of science, medicine and the professions pioneered, for example, by Gieryn (1999), and taken up more recently by Brosnan (2015) and Vuolanto *et al.* (2020), have drawn considerable attention to the processes of boundary division by which scientific disciplines and modern professions seek to maintain their autonomous position, defend their territory, and gain legitimacy. In Gieryn’s theory, for instance, “boundary work” describes “the discursive attribution of selected qualities to scientists, scientific methods, and scientific claims for the purpose of drawing a rhetorical boundary between science and some less authoritative residual non-science practitioners” (1999, 4-5). These boundary-setting discourses, then, not only put the seemingly non-science position of CAM in one of those methodological straight-

jackets and polarized representations, but also drive CAM researchers into conciliatory efforts to counterbalance perceived biases among the wider scientific community and to reframe their knowledge boundary by virtue of their stringency in research methods.

In response to such biases, it is not hard to see how many CAM scholars are now selecting the most suitable venue for publishing their research and keeping their output to frontier science. In doing so, they are anxious to bring insights into therapies, protocols, and strategies and their responsible integration with mainstream medicine, and to make their work as noticeable as possible in the digitally transformed system of scholarly medical publishing made increasingly available by the formal and less formal modes of communication (Tessuto 2025). It is also the case, of course, that choosing the ideal publishing venue for research can significantly impact the scholars' academic career as a result of today's highly competitive regime of "publish or perish" that counts for recruitment, promotion, tenure, or other perceived benefits (Salager-Meyer 2014; Hyland 2015 and 2023; Guraya, Norman, Khoshhal, *et al.* 2016). While these relentless pressures to publish by institutions, funders or other stakeholders appear now to be more keenly felt internationally, they also tell us much about a wider, long-established societal trend toward "marketization" of the academy, which Bauwens *et al.* (2023, 1-2) define along "two related dimensions: the commodification of academic output and the 'managerialization' of academic governance", suggesting the increased tendency to treat scholarly output as tradable commodities and to manage academic institutions as businesses.

In this intricate fabric of the scholarly landscape, then, publishing original research articles through holistic "open access" systems for scholarly medical communication presents CAM scholars with opportunities as well as challenges that shape the trajectory of their discipline. It is no longer sufficient for these scholars to simply have to surpass the desired standard and share their knowledge in the cutthroat culture of academic writing, they must also work twice as hard to survive on a very uneven playing field to secure their own professional "boundaries" and protect their knowledge and expertise against mainstream biomedical scholars. So, their writing is in large part a matter of designing research content that is effective in conveying a sound and credible representation of themselves and their work, gaining approval from a suspicious community of experts, and carving out a knowledge space in this kind of hustle and bustle of digital knowledge market. For CAM scholars, then, writing in the article genre depends on their ability to make the most persuasive argument they can through rhetorical patterns of language use which connect their texts with the ethical appeals to their own credibility and knowledge about the topics at hand and send a clear signal of their writing as a social and communicative engagement with readers. Consequently, producing texts that construct social relationships, values, and meanings in writer-reader interaction is not only crucial to establishing an appropriate ethos that values CAM research tradition in the genre writing but also matters to the evaluative and interpersonal features of writing and the role they play in this persuasive endeavour. These approaches by which writers comment on their propositions and shape their texts to the expectations of their audiences have come to refer to various productive ways of exploring evaluative and interpersonal features of discourse, including *evaluation* (Hunston and Thompson 2000), *stance* (Biber 2006), *stance and engagement* (Hyland 2005a), *metadiscourse* (Hyland 2005b), and *appraisal* (Martin and White 2005).

Stemming from this, this study conducts a quantitative and qualitative discourse analysis of CAM research articles to see how and to what extent scholars use interpersonal and evaluative resources of language to signal their understandings of the materials they present and the audience with whom they communicate, and how they exploit persuasive rhetorical strategies of the genre to build their own insider ethos, ultimately demonstrating that they are authoritative, credible, and trustworthy sources of information in the writer-reader relationship.

Prior to presenting and discussing the main results related to these research aims, I shall first outline the empirical material and research method employed.

2. Material and Method

2.1 Corpus Data

The data source for this study came from a synchronic corpus of 30 English-medium, multiple-authored academic research articles (RAs) written by internationally dispersed scholars from the field and available from three Open Access reputable peer-reviewed journals – namely, *BMC Complementary Medicine and Therapies* (CMT), *JAMA Network Complementary and Alternative Medicine* (CAM), and *Evidence-Based Integrative Medicine* (EBIM), published previously as the *Journal of Evidence-Based Complementary and Alternative Medicine* (JEBICAM).¹ Three equal-size corpora were built from this field over a five-year period (January 2019 to January 2024), with each corpora containing 10 RAs in the category of “Original Articles” / “Original Investigation” to form a corpus of 30 samples in all. In reporting on alternative, complementary, and integrative medicine topics alongside their interventions, practices, and products, all the articles tied academic writers to the standard Introduction-Method-Results-Discussion (IMRaD) macrostructure of research article writing, as necessary to lay down a hypothesis-driven and evidence-based position on the topics under scrutiny, providing a principled way to see how CAM writers situate their work and mark their participation in their discipline-specific practices.

Articles were downloaded from these community-recognized repositories, converted into electronic format, removed of reference sections and visuals, and finally computed by Sketch Engine software (Kilgariff *et al.* 2014) for a 142,872 running token corpus (Table 1).

Journal title	Publication years	No. of papers	Tokens	Words	Sentences
<i>BMC Complementary Medicine and Therapies</i> (CMT)	2019-2023	10	47,343	36,928	1,576
<i>JAMA Network Complementary and Alternative Medicine</i> (CAM)	2019-2023	10	42,376	32,887	1,340
<i>Evidence-Based Integrative Medicine</i> (EBIM)	2019-2023	10	53,153	44,303	1,746
Total	5	30	142,872	114,118	4,662

Tab. 1 – Characteristics of corpus

¹ See *BMC Complementary Medicine and Therapies* (<<https://bmccomplementmedtherapies.biomedcentral.com/>>, 01/2025); *JAMA Network Complementary and Alternative Medicine* (CAM) (<<https://jamanetwork.com/collections/5575/complementary-and-alternative-medicine>>, 01/2025); *Journal of Evidence-Based Integrative Medicine* (EBIM) (<<https://journals.sagepub.com/home/chp>>, 01/2025).

In terms of size and time span, this sample provides a broadly representative picture of language use across a reasonable spectrum of academic endeavour and in key areas of CAM research.

2.2 Analytical Procedure

To examine these corpora in quantitative and qualitative terms, reference is made to Hyland's (2005a) interactional *stance* framework for evaluation in academic writing. Under this framework, stance "involves 'positioning', or adopting a point of view in relation to both the issues discussed in a text and to others who hold points of view on those issues" (176), and includes three rhetorical components realized by interpersonal resources – namely, *evidentiality* – "the writer's expressed commitment to the reliability of the propositions he or she presents", either toning down a claim with *hedges* or intensifying it with *boosters*; *affect* – a "broad range of personal and professional attitudes towards what is said" through *attitude markers*; and *presence* – how far writers choose to project themselves into a text using *self-mentions* (178–81). Writers can use such interpersonal resources to present propositional material and conduct interpersonal negotiations (*ibidem*). For the purposes of this study, however, only hedges and boosters were taken into account, the reason being to see how "they refer to, anticipate, or otherwise take up the actual or anticipated voices and positions of potential readers" (176, after Bakhtin 1986), while also forging a broader sense of identity, defined as "the ways that people display who they are to each other" (Benwell and Stokoe 2006, 6).

Standing alongside this site for research was the recognition that evaluative resources for stance taking favoured modes of persuasive discourse and argumentation techniques in Aristotle's (2007) model of rhetorical analysis. In this model, *ethos* (also known as ethical appeal) equals the *fons et origo* of stance that is completely embodied in a speaker's voice and is one of the means through which the voice of speakers can be persuasive, in addition to *logos* (building up logical arguments) and *pathos* (reader-appeal to emotional arguments). More precisely, *ethos* was conceptualized as a specific dimension of attributed credibility or authority resulting from the attributes of "competence" (expertise, intelligence), "trustworthiness" (honesty and character), and "goodwill" (intent-toward-receiver and perceived caring) of the source in the persuasion process (McCroskey and Teven 1999; Aristotle 2007), or similarly derived from the "persona, or projected character of a speaker/communicator, including their credibility and trustworthiness" (Higgins and Walker 2012, 197). In line with this, and as shown by previous studies across genres (Ho 2016 and 2018; Hyland 2005b; Kawase 2015), *hedges* and *boosters* were taken as important persuasive resources to achieve ethos in a specific situation of discourse alongside *personal pronouns* (Wang, Tseng and Johanson 2021), thereby revealing the different ways in which ethical appeals to readers can be represented and measured evaluatively by *evidentiality* and *presence* markers in the discourse genre.

Linguistic resources in the current corpora were searched using AntConc (Anthony 2019), manually examined and counted for each concordance to establish that the candidate feature was performing a proper stance function across the argumentative structure of research papers. Individual items were compiled in a list of frequency counts and used as a springboard to a qualitative and quantitative analysis of the samples.

3. Results and Discussion

3.1 Stance Markers by Frequency: Overall Corpus Findings

Upon close inspection of the sampled texts, a total of 1,102 instances of potential stance markers were identified across all sections of CAM research articles (Table 2), averaging 9.66 cases per 1,000 words or 36.74 per article.

Marker	CAM research article sections	
	<i>N.</i>	%
Hedges	471	42.74
Boosters	535	48.55
Presence	96	8.71
Total	1,102	100

Tab. 2 – CAM research article sections

Figure 1 below provides an instant picture of the proportion of stance markers across all corpus sections.

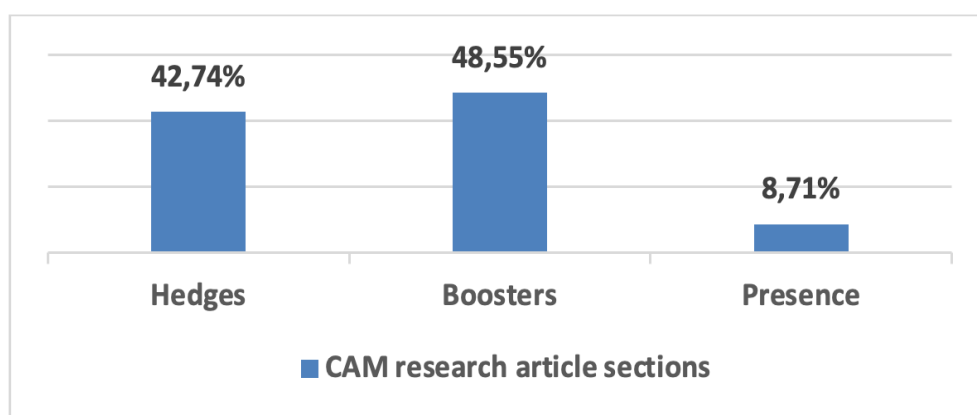


Fig. 1 – Stance markers: frequency

As we see from this Figure, *boosters* are the most popular choice overall, accounting for almost half of markers employed (48.55%), followed by *hedges* (42.74%), with *presence* markers trailing behind (8.71%). Already at first sight, these frequency counts demonstrate the importance writers attached to evaluating material and conveying an explicit stance or position towards the sources of the evaluation and the readers in the interactional and persuasive nature of the genre.

3.2 Stance Markers Operationalized by Functions and Ethical Appeals

3.2.1 Hedges

As mentioned, hedges comprised just over two fifths of all interactional and evaluative features in the corpus (42.74%), meaning that their use did not dominate the higher frequency of features as found in cross disciplinary studies on research articles and other academic writing forms (e.g. Hyland 2005b; Hyland and Tse 2005; Tessuto 2021). In this corpus, hedges were linguistically realized by lexical means via epistemic modal auxiliary verbs (e.g. *might*, *could*), epistemic lexical verbs (e.g. *assume*, *seem*), epistemic adjectives (e.g. *likely*, *possible*), epistemic adverbs (e.g. *rather*, *presumably*), and epistemic nouns (e.g. *hypothesis*, *possibility*), and by

non-lexical means via abstract rhetors (e.g. *the results suggest that*), impersonal *it* constructions, personal attribution (e.g. *we assume*) and references to limited knowledge (e.g. *there is no research evidence*). In general, this range of realizations provides writers with rational strategies for downplaying their commitment to a proposition, modifying its scope, and establishing a suitable relationship to their audience (Hyland 2005a).

Consistent with this, a variety of hedging devices are mobilized particularly across the Introduction and Discussion sections below to signal that writers have less than optimal epistemic grounds for being confident about the content of their propositions. We can see this in example (1), with the authors drawing on intertextual references to cited sources in superscript numerals to provide propositional warrants for their tentative argument in problem framing, in this case using *may* modal to describe the possibility for “post-traumatic stress, anxiety and depression to grow progressively less in intensity by yoga treatment”, prior to stepping into the text via an exclusive *we* pronoun to announce their research findings by way of a randomized clinical trial for the effect or no effect of the existing treatment. Or, in example (2) with authors softening their claim by acknowledging the “likely toxicities of some anti-inflammatory drugs for pain relief” they are interested in, and thereafter outlining some limitation or knowledge gap in existing research – claiming topic centrality in CARS model (Swales 2004), or in the remainder of examples with the authors discussing or giving interpretations for their study results whose propositional material can only be surmised:

- (1) Previous studies¹⁰⁻¹³ have reported that Sudarshan Kriya Yoga (SKY) **may** decrease post-traumatic stress, anxiety, and depression, and therefore **may** be a therapeutic option. Here, *we* present the results of a randomized clinical trial that aimed to assess the efficacy of SKY to improve [...]
(CAM: INTRODUCTION)
- (2) Current drug management of inflammation pain and fever includes utilization of non-steroidal anti-inflammatory drugs [...]. However, their **potential** toxicities like gastrointestinal problems, respiratory depression, renal damages, and **possible** dependence (with opioids) **are relatively known**.
(CAM: INTRODUCTION)
- (3) The negative results obtained for influenza A viruses **seem** to be in contradiction with previous findings obtained with influenza A viruses in A549 cells^{27,28}. (CMT: DISCUSSION)
- (4) These differences fall below **certain thresholds** for clinical meaningfulness and **would** be considered as slight or small to moderate magnitudes of effect in the Agency for Healthcare Research and Quality systematic review of nonpharmacologic treatments for chronic pain.
(CAM: DISCUSSION)
- (5) **We assume** that the missing impact of the effectiveness briefing on pain **might** be due to the low effectiveness of the acupuncture treatment.
(CMT: DISCUSSION)
- (6) **It could be hypothesized** that A β production recruits a series of downstream molecular events that orchestrate the clinical outcomes of AD.
(EBIM: DISCUSSION)
- (7) The findings suggest that the high dose (150 mg/kg) of *H. erinaceus* mycelium is **likely** to block the TSTs-induced decreases of NREM sleep [...].
(EBIM: DISCUSSION)

More precisely, preferential items in epistemic use like *may* in example (1) to disguise the external source of the interpretation combine more easily with the writers' explicit source of the evaluation in example (5) via a cognitive verb/attribute projection in the *that*-clause (*We assume*) to foreground the writers presenting a finely-tuned affective stance, or with a dummy, impersonal *it* subject in example (6), or an abstract rhetor in (7) to highlight the writer's attitudinal stance while remaining in the background. In other words, we see these writers having different opportunities to comment on, and evaluate materials when they carefully handle their claims to avoid overstating their case.

But in writing for their peers in the CAM community, along with their biomedical counterparts, these writers also have to invite the readers to consider current evidence of their propositions construed as contingent and individual and hence potentially disputable in the immediate writing circumstances. So, in practice, this means writers entering the realm of considerable probability and speculation rather than certain knowledge when they offer non-factive assessments of the propositions like those concerning yoga, acupuncture, viruses, or other research topics they are getting across in the examples mentioned. Viewed interactionally, this also means writers evaluating and negotiating their knowledge claims in ways that are likely to be acceptable and persuasive to their readers, so that the variety of (lexical and grammatical) realizations of hedging in the cases above turn on how writers make allowances for, and hence make discursive space for, other value positions in the ongoing interaction.

But these evaluative strategies go further than the need to address readers from a position of uncertainty or speculation about the contingent states of affairs under consideration. They emphasize that, in creating a persuasive reader-environment, writers are also seeking to project an identity or voice invested with a more nuanced ethos of “trustworthiness” that helps them stay accountable to their values of “honesty”, “character”, or “persona” (McCroskey and Teven 1999; Aristotle 2007; Higgins and Walker 2012) and fosters stronger connections and a greater appreciation of each other’s individuality in communication. Of course, an ethos that nurtures connections is also a matter of the professional community scholars belong to, which projects them as having built-in credibility and experience prior to their submission being reliably verified by the strict criteria of the peer-review process. However, in the examples cited, where epistemic modality markers are used, an ethos of this kind is most obviously shaped by the writers treading carefully with their propositions to secure their own rhetorical image as fair-minded characters or personae involved in making moderate and honest assessments of those topics, building rapport, understanding and credibility with the audience, and making it more likely to trust in the limitations of their arguments and knowledge in appropriate social interactions. But, while ethos here is about writers catering for their positioning on the epistemic scale of their hedged propositions in order to be conciliatory and persuasive, it is also about attending to the protection of their *face* (the need to be appreciated/accepted) in *solidarity politeness* (Brown and Levinson 2009). What this means in practice is that a personal ethos of modesty can serve as a valuable tool for mitigating the damage to the writer’s “positive face” and his personal credibility, since CAM writers rely on heavily mitigated statements to humble their own “face” and make good for significant “other like-minded individuals” (“negative face”) in interaction, in this case seeking to temper aversion, particularly from a biomedical science audience, and finally win it over. This, then, makes sense of a very personal (subjective) and interpersonal (intersubjective) endeavour in the face of knowledge contingencies and creates a sustainable community engagement that is effective for ethos-aligned relationships beyond the (CAM) peer reach.

3.2.2 Boosters

Boosters, the most frequent items in the corpus (48.55%), were variously realized by modal auxiliary verbs (i.e. *will*, *will not*, *could not*), lexical verbs (e.g. *demonstrate*, *find*), adjectives (e.g. *conclusive*, *manifest*), adverbs (e.g. *decidedly*, *unarguably*), nouns (e.g. *certainty*, *evidence*) and miscellaneous (e.g. *we all know that*) to express the writer’s strong commitment to a proposition by stressing shared information and effecting solidarity with readers (Hyland 2005a). As rhetorical communicative tools for signalling that the writer’s claims are to be taken as evidential or accepted truth while persuading readers of the correctness of such claims, boosters provide writers with two major strategies to display certainty and commitment in their discourse.

Firstly, boosters serve to carry the writer's conviction by convincing readers of the logical force, or accepted truth of their arguments. This can be seen from the following cases where writers employ a variety of boosting expressions to represent a strong claim about a situation, as in examples (9) and (12), with the writers being confident about "yoga producing a desired effect in post-traumatic stress disorder", or about "steroid drugs having serious side effects on osteoporosis, myopathy and so on":

- (8) **True is** that inflammation is a self-defense mechanism that is triggered by pathogens [...].
(CMT: INTRODUCTION)
- (9) **It is evident** that effectiveness of yoga to treat post-traumatic stress disorder (PTSD) is growing.
(CAM: INTRODUCTION)
- (10) As we have seen, the threshold for reporting serious adverse events, **quite simply**, is high.
(CAM: discussion)
- (11) It is **indeed the case** that rhinoviruses, influenza viruses, and coronaviruses are diagnosed in acute respiratory infections.
(CMT: INTRODUCTION)
- (12) But **what is certain** is that steroid drugs have serious side effects such as osteoporosis and fractures, immunosuppression, myopathy, cardiovascular disease, glaucoma and [...].
(EBIM: DISCUSSION)

Discrete examples like these not only show that writers are presenting information as consensually given and therefore assuming shared ground and solidarity with readers, but also that the assurance they convey by their propositions as faultless reasonings inevitably curbs the negotiating space available to the reader likely to raise other positions.

Secondly, boosters allow writers to comment impersonally on the validity of propositions. This kind of commitment emerges particularly from Discussion sections, where CAM writers present their findings in ways that are adequately controlled (compared to a placebo or conventional medicine), randomized, or statistically based to describe, analyse, and interpret the effect reported in research as confidently and accurately as possible. In doing so, writers follow the same standards and evidence threshold as those of mainstream ("hard" science) medicine, and in this way, are principally concerned with conferring validity to their investigation, generating sound and objective evidence regarding an alternative/complementary treatment, and getting the reader to understand and accept the veracity of their empirical data in terms of "factive" rather than "non-factive" (hedged) statements. This committal stance, then, turns on the ways in which CAM writers engage with the epistemological assumption of positivism in research and scientific inquiry whereby only observable facts obtained from experience, experiments or scientific methods can be genuine knowledge claims (Cohen, Manion and Morrison 2018).

In the examples below, impersonalization strategies are mainly realized through a combination of "abstract rhetors" to present a view where a research entity, for instance, "randomized clinical trials" in (14), takes responsibility for the asserted proposition and supports the reliability of their empirical claims with certainty of knowledge, and boosters to spotlight the strength of warrants with evidentiality verbs like *show* and *establish*, suggesting the efficacy of the connection between data and claims and spilling proof over into their arguments. So, in example (13), we find writers investing their statements of findings with a guarantee of reliable knowledge, in this case that "oxidative stress is one of the contributing factor for the development of oral infections", or expressing the certainty about expected outcomes with a modal *will* in example (18), in this case foretelling with shrewd inference from observable facts what is predictable about the "human body adapting to TEAS intervention and bearing insensibility to pain condition":

- (13) These data **clearly show** that oxidative stress is one of the key etiological factors in etio-pathogenesis of oral infections. (CAM: DISCUSSION)
- (14) 73 IBS randomized clinical trials **proved** that the magnitude of the pooled placebo response rate in pharmacological trials in IBS was 27.3% for the global improvement responder end point. (CAM: DISCUSSION)
- (15) This meta-analysis of 26 studies of music interventions provides **plain evidence** that music interventions are associated with clinically significant changes in mental HRQOL. (CMT: DISCUSSION)
- (16) This research **has established** that the prostaglandin E2 (PGE2) is the final fever mediator in the brain, especially in the preoptic area of the anterior hypothalamus. (CMT: DISCUSSION)
- (17) The results (Fig. 3A and B) **demonstrate** that the tested extracts displayed inhibition of COX-1 and COX-2 enzymes in a concentration dependent manner being more selective towards COX-2 enzyme. (EBIM: DISCUSSION)
- (18) Repeated transcutaneous electrical acupoint stimulation (TEAS) intervention over a long period of time or at short intervals **will** cause the body to adapt to TEAS and thus become highly tolerant of analgesia. (EBIM: DISCUSSION)

While all these cases show that the writers' new claims are unequivocally and immediately apparent for readers to accept without dispute, reliance on positivist epistemologies also suggests that writers are dismissing their own individual, subjective experiences and values as these require researchers to stay objective and generate empirically based findings well outside of their personal role to highlight the phenomenon under study.

In addition to foregrounding empirical data, procedures, or results by abstract rhetors, writers can also refine the mastery-based condition for establishing empirical research through their *presence* in the discourse. In the following examples, where *self-mentions* (exclusive pronouns and possessive determiners) are used, writers are not simply taking a more personal style but are articulating a "discoursal self" (Ivanič 1998) and "authorial identity" (Hyland 2005a and 2005b) together when they seek to position themselves in relation to their current work:

- (19) In **our** research, **we have demonstrated** that cognitive damage by ketamine is **clearly** associated with its effects on major neurochemicals such as acetylcholine. (EBIM: DISCUSSION)
- (20) **We strongly believe** that inflammation is a major culprit in arthritis, lupus, high blood pressure, migraines, rheumatoid arthritis, Chron's disease, Alzheimer's disease, irritable bowel syndrome, colitis, tendonitis. (CMT: DISCUSSION)
- (21) In **our** randomized clinical trial of 74 patients with depression (*authors' quote*) **we found** noticeable differences in adverse event rates between the intervention (specific auricular acupuncture) and control (nonspecific auricular acupuncture) groups [...]. (CAM: DISCUSSION)

More precisely here, we find writers expressing custody of what they report in the current study, as in example (19), with the writers staking out an individual position and data-supported claim about "cognitive damage by ketamine having tangible effects on neurochemicals", or moving from data-supported claims to construe a high personal commitment to the proposition that "inflammation is the major cause of arthritis, lupus" or other medically diagnosed conditions in example (20), or sketching background to previously published work through self-citation (21), in this case doing research in patients randomly assigned to an experimental group and moving things forward in the current study.

However, claim making also helps clarify the writers' distinctive contribution and commitment to their positions or findings by developing an overall attitude both to their readers and their arguments. We can see this in the examples below, where writers are heavily invested in spelling out what is salient about their empirical study or findings and staking out their scientific claims to tangible topics, such as in (23), where "a test compound in paw edema" is presented as "sufficiently relevant" to demonstrate that they have something worthwhile to say:

- (22) Overall, this study **underlines** the **importance** of maintaining healthy ROM, especially in subjects who already show signs of impairment. (CAM: DISCUSSION)
- (23) The test compound A **showed** a **highly significant** ($P < 0.001$) decrease in paw edema ranging from 46 to 68% during the 1st hour of the experiment as compared to standard drug ibuprofen (57%). (CMT: DISCUSSION)

While the combination of boosting verbal items (*underline*, *show*) with attitudinal nouns (*importance*) or gradable adjectives (*highly significant*) reinforces epistemic conviction in claims and a clear assurance of "importance" or "weight" in different parts of the arguments, it is easy to see how writers are able to make the message convincing and bring readers round to their evaluative perspective.

At other points, however, writers may choose to clarify their distinctive contribution still further by producing utterances that stress the prospective benefits or utility of their research:

- (24) This work will be **necessary** to investigate the function of individual active components of AVE and to identify their **effective** mechanism of action. (CAM: INTRODUCTION)
- (25) The results obtained in the present in vitro study **contribute to the beneficial** effects of these plant extracts on symptoms of acute respiratory infections. (CMT: CONCLUSION)

It therefore becomes clear that when writers express their own commitment with forms like *find*, *show*, *clearly*, whether or not combined with self-mentions, they not only intend to describe the rationality and objectivity of their epistemological inquiries that are the epitomes of scientific research, but also make the most persuasive case for the originality or value of their research findings to the scientific community, including an audience of mainstream biomedical colleagues likely to be sceptical about such a value. These aims are achieved by legitimizing the validity and credibility of new knowledge claims that emerge from the problems they investigate, the methodologies they employ, the data they analyse and the outcomes they write up.

At the same time as persuading the community to assent to the significance and certainty of their knowledge claims by boosters, writers are also projecting a new discursive identity invested with a scholarly ethos of confidence of factual reliability by which to claim credit for undisputable positions on the topics they are strongly arguing about, ultimately establishing their authority and expertise to conduct significant research and contribute new knowledge for an audience who can make use of it. While claims here become robust and credible by the very fact of publishing articles in journals that operate a peer review quality threshold and ensure that the appropriate ethical standards are being upheld to prevent the propagation of flawed or biased research, setting goals that align with the writers' ethical appeal to credibility of their published work can also significantly impact on their career and personal success because of the constant pressure to publish and the need to stand out from the noise of scholarly medical publishing.

So, unlike hedges enabling writers to cast potentially controversial assertions as contingent, individual, and less assured, displaying more confidence by boosters turns on the ways writers choose to confront the diversity of positions with a single, assertive ethos that values the factual

status of their propositions by reliable knowledge and expertise in the field and instils confidence in readers through a voice of certainty in the interactional space provided. And we have seen, for instance, how the combination of boosting lexical verbs with self-mentions in example (20) – *We strongly believe that inflammation...* – not only allows CAM writers to thematize their personal view by taking a more direct responsibility for the views presented, but also to project a more personal ethos along a confident line of knowledgeable and competent identity afforded by their authorial credibility and expertise in the field. This is, in other words, an ethos that defines CAM writers as professional members of the community who are able to deliver with authority on the subjects at hand, strengthen their research credibility, and conduct social relations with colleagues.

Conclusion

In this study I have sought to explore how CAM research is linguistically and discursively stanced and credentialized in the genre of scholarly articles at a time when non-mainstream medical practice is still making headway in diverse meaning-making ontologies of institutionalized, mainstream biomedicine.

I have done so by showing how genre writers deploy evaluative and interpersonal resources of stance towards the issues they discuss and the readers they address and make use of these resources to create rhetorical appeals to a scholarly ethos from within the boundaries of their discipline. The corpus analysis of *evidentiality* hedges and boosters as well as *presence*, however relatively conventional in the genre, has been shaped by an awareness of CAM writers to supply as many cues as are needed to secure readers' understanding and acceptance of their arguments and claims and to convey their professional authority, credibility and expertise in terms of the propositions they frame for peers and others to see as most persuasive. We have seen how CAM writers are more inclined to make strong and confident assertions by boosters to convince their readers about the truth value of a claim put forth, or a position taken, and to offer a credible representation of themselves and their research by making personal appeals to a competence – and expertise-defining ethos. While, proportionally, writers are far more reluctant to build a personal ethos by self-mention, they are equally fond of setting out their arguments and claims circumspectly by hedges and favour a modest, risk-averse scholarly ethos by which certainty of definitive judgments might be unwise in the discourse at hand.

By controlling the expression of interactional relationships within this influential genre of the academy and displaying familiarity with the persuasive practices of their discipline, CAM writers are able to emphasize the value of their research in a way that meets disciplinary criteria of rigor and interest and builds a more effective ethical appeal to credibility in this form of academic writing. This way of “seeing” ethos through interactional markers not only carries the epistemological and social beliefs of CAM members as they construct knowledge domains, but also elucidates a larger “boundary” context for interpretation, showing how CAM scholars' discourse employs epistemologies of legitimation and professional identity to renegotiate their relational positionality vis a vis biomedicine, without undermining the integrity of either domain.

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