Available online at www.sciencedirect.com
ScienceDirect
Research in Social and Administrative Pharmacy 11 (2015) 288–296
RESEARCH IN SOCIAL & ADMINISTRATIVE PHARMACY

Commentary

The appeal of medical quackery: A rhetorical analysis

Rebecca M. Widder, B.A., B.S.P.S.,
Douglas C. Anderson, Pharm.D., D.Ph.*
Cedarville University School of Pharmacy, 251 N. Main St., Cedarville, OH 45314, USA

Summary

Medical quackery has been a pressing issue nearly from the start of the medical profession – whether the nostrums and patent medications of old or the super-foods and miracle supplements of today. Throughout history and into the modern day, the medical establishment has tried to counteract the claims of charlatans in order to protect patients from potentially harmful treatments. Countering today's pseudo-medicine begins with an examination of what makes patients susceptible to the claims of quack medicine. Understanding why patients are susceptible to dubious health claims begins with an examination of the rhetoric used to persuade a demographic toward alternative therapies. This knowledge can then be used to educate patients, and to better demonstrate the benefits of evidence-based medicine while improving patient interactions.

Keywords: Quackery; Alternative medicine; Marketing; Alternative therapies; Complementary therapies

Introduction

From patent medications and nostrums to super-foods and miracle supplements, medical fraud, often referred to as "quackery," has historically been a pressing and emotionally charged issue for health care professionals. Much like today, historical analysis of 18th century English quackery shows that those making dubious medical claims excelled at 3 things: taking advantage of new market opportunities, building a brand name, and advertising their product.[1] In fact, as reported by Huisman, the founders of the Dutch Society Against Quackery first wrote a book in the late 1800's aiming to combat quackery by analyzing the techniques charlatans used to sell their remedies.[2] Like in the past, assessing the advertising of today's pseudo-medicine can provide an understanding of what makes those seeking alternative medicine susceptible to dubious medical claims. This understanding can provide health care practitioners with new ways to address misleading health care claims with their patients.

Today's quackery is defined by the National Council Against Health Fraud as "promoting health products, services, or practices of questionable safety, effectiveness, or validity for an intended purpose," and further clarified as therapy that provides risk of harm without providing offsetting benefit.[3,4] It often takes the form of alternative medicine, marketed under the umbrella of the Complementary and Alternative Medicine movement.[3,5] Since there has been evidence supporting the safety and efficacy of some forms of complementary medicine (i.e. the use of zinc for the common cold, yoga for chronic lower back pain, or peppermint oil for irritable bowel syndrome), this

* Corresponding author. Tel.: +1 937 766 3017.
E-mail address: andersond@cedarville.edu (D.C. Anderson).

1551-7411/$ - see front matter © 2015 Elsevier Inc. All rights reserved.
http://dx.doi.org/10.1016/j.sapharm.2014.08.001

is not a claim that all forms of CAM constitute quackery.[6–8] Rather, it is an acknowledgment that the overarching definition of CAM includes treatment modalities that have historically been a feeding ground for quack medicine.[3,5] Organizations such as the National Center for Complementary and Alternative Medicine (NCCAM) and the Cochrane Collaboration recognize the difficulty in providing a definitive definition of CAM outside of an exhaustive list of current CAM therapies. However, it is agreed that CAM consists of treatments that originated outside of conventional Western medicine, are not a part of standard treatment for a disease state, and not generally delivered by conventional medical personnel.[9,10] A particular CAM therapy is considered "complementary" if it is used alongside Western medicine, and "alternative" if it used instead of Western medicine.[9] The term "integrative medicine" has also been used for the use of conventional medicine along with CAM therapies backed by high-quality evidence.[9] Evidence of efficacy is not a part of the consideration in a CAM classification, and therefore CAM includes both "proven" and "unproven" therapies.[10] This unfortunate ambiguity may lead to a tension between CAM rhetoric and conventional medicine throughout this paper. Since it is not the intention to deepen the schism between Western medicine and efficacious CAM, the term "integrative medicine" will be used to refer to evidence-based CAM and the term "CAM" or "alternative medicine" will be used to refer to the broader field from which quackery tends to come. Developing a classification scheme that clearly separates the quackery from the legitimate therapies is beyond the scope of this paper. For clarity, NCCAM's categorization of different therapies classified as CAM have been summarized and provided in Table 1.[9] This paper seeks to provide a brief rhetorical analysis of the historical and current advertising of quackery in the form of CAM rhetoric in order to build an understanding of what makes a consumer or patient more likely to fall prey to quack medicine.

Profile of a CAM user

Understanding the rhetoric of CAM advertising begins with an understanding of the typical CAM consumer, since marketing strategies are focused on attracting a target audience to a product. Table 2 provides a synopsis of several studies focused on the type of person who utilizes CAM, as well as a list of the most common medical problems patients report driving them to seek alternative therapies.

Overall, the typical CAM user tends to be female, middle aged, and college-educated, with lower perceived health and a higher level of spirituality (seeking answers and understanding to ultimate questions regarding life and its meaning and relationship with the sacred).[11–17] Most patients who used CAM therapies did so in conjunction with some sort of traditional Western treatment, with 60% of physicians reporting recommending some form of CAM to their patients within the past year, utilizing the "complementary" side of CAM.[5,15] Conversely, patients who rely primarily on alternative medicine for their health care are more likely to distrust conventional health care providers, distrust hospitals, desire control over health matters, express dissatisfaction with conventional practitioners, and have a belief in the importance of one's inner life and experiences on their overall well-being.[15] Patients who use CAM concomitantly with conventional medicine are often reluctant to disclose this to their providers.[18]

For each of the top medical conditions, with the exception of addiction, most patients report seeking a form of exercise, massage, or relaxation as the primary CAM treatment.[15] However, most

Table 1
Classifications of CAM with examples of treatment modalities[9]

CAM therapy classification	Examples
Holistic medical systems	*Homeopathic medicine, traditional medicine, Ayurveda*
Mind-body medicine	*Patient support groups, cognitive-behavioral therapy, prayer, mental healing, creative outlet therapies*
Biologically based practices	*Herbs, food, vitamins, dietary supplements, herbals, use of shark cartilage to treat cancer*
Manipulative + body-based practices	*Chiropractic medicine, massage, osteopathic manipulation*
Energy medicine	*Bio-field therapies, qi gong, Reiki, therapeutic touch, bio-electromagnetic based treatment*

Table 2
General population traits associated with increased CAM use[11–16] and top medical conditions treated with CAM worldwide[13]

Traits associated with CAM use
Female[11–14]
Middle aged[13,14]
Higher levels of spirituality[15,16]
Lower emotional role functioning[11]
Lower perceived health[11,15]
Serious, chronic, or longer illness[14]
Higher level of education[11,13,15]
Previous transformational experience leading to a worldview change[15]
Holistic view of health problems[15]
Top medical conditions treated with CAM[13]
Back pain and related pathology
Depression
Insomnia
Headache or migraine
Stomach or intestinal illness

of the conditions that lead to a patient seeking a CAM approach are disease states for which the modern medical approach can be full of trial and error, or treatments that do not provide complete relief.[11,12] Additionally, those seeking CAM tend to have a serious, chronic, or long-term illness.[14] This could be a part of the motivation that drives patients to seek additional treatment options outside of Western medicine.

A primer on persuasion

Before the advertising rhetoric of alternative medicine is examined, it is also necessary to explore the foundations of a persuasive argument. Aristotle's treatise, *Rhetoric*, outlined 3 aspects of persuasion: *ethos*, *pathos*, and *logos*.[19] *Ethos* refers to "ethical proof," or the speaker's credibility and authority, since an argument is more believable if the person making it appears credible, authoritative, and virtuous.[19] *Pathos* refers to the emotional appeal of an argument.[19] Since affect has been shown to modify cognition, a strong emotional impact can in turn influence the audience's reasoning abilities.[19,20] *Logos* refers to the "logical proof" of the argument, encompassing both the argument itself and the purpose of it.[19] An argument with strong *logos* will have facts and details that flow cohesively and coherently together, are credible, and are used appropriately to support the thesis.[19] While all 3 aspects of persuasion are desirable for a good argument, through its ability to influence judgment, *pathos* is the most powerful form of persuasion – a lack of *ethos* and *logos* can easily be overlooked by an audience if a strong emotional appeal affects their reasoning faculties.[19]

The rhetoric of CAM and its appeal

A historical perspective

While the marketing language of alternative medicine has changed since the days of potions, elixirs, and nostrums, some of the same principles apply. Eighteenth century English "advertising professors" were masters at exploiting new market opportunities by capitalizing on health obsessions already present in the population – these quacks used advertising strategies and the media to their full advantage; selling bargain packs, distributing pamphlets, offering treatments free for returning soldiers, and writing "advertorials" designed to look like unbiased articles on the healing properties of a new drug.[1,21] These charlatans established their *ethos* mainly through appeals to exoticism – whether through a potion's origins in the orient or an ancient practice or calling on experience from their own travels abroad.[21] Table 3 provides the authors' categorization of the components of these advertisements according to Aristotle's principles. As seen in the table, there are more appeals to *ethos* and *pathos* in the marketing of quackery than there are to *logos*, and the little evidence presented by "advertising professors" tends to be rooted in *ethos* and *pathos* rather than the scientific method. Some of these same strategies are seen today, with exotic cures and super-fruits expounded in "advertorials" replaced by endorsements from television personalities or celebrities in talk show segments, health magazines, tabloids, the internet, or daily newspaper. However, alternative medicine today also appeals to its power and efficacy by setting itself up in contrast to western medicine's weaknesses.

The modern approach

CAM has built its rhetoric to appeal specifically to spiritual, educated women (the primary users of alternative medicine) by setting up a series of 4 straw-man metaphors: profit-mongering "Big Pharma," the doctor as a deity, illness as war, and the body as a machine.[22] The last three straw-men were originally proposed by Barbara Willard in her feminist critique and rhetorical analysis of integrative medicine, and are expanded on here in addition to the newer straw-man of "Big

Table 3
The persuasive elements of historical quackery

CAM modality	Ethos	Pathos	Logos
"Advertising Professors"	Medical credentials	Directed at current	Advertorials
	Travel abroad	Health obsession	Exoticism
	Personal experience	Testimonials	Testimonials

Pharma."[22] A straw-man metaphor or argument involves inaccurately representing an opponent's position, and then countering the misrepresentation in lieu of the actual position.[23] The metaphors used by alternative medicine amplify genuine critiques of the medical community to extremes, attacking the *ethos* of modern medicine and its practitioners while moralizing the healing process and dichotomizing medical treatment.[22,24] In this dichotomy, modern medicine is a cold, disjointed, toxic, "evil" and unnatural force of technology in contrast to a more natural, holistic, pure, good, and balance-driven force for unity that seeks to create conditions of health instead of merely treating specific pathologies.[22,24] Through all of these arguments, alternative medicine relies on the *pathos* of anecdotal evidence to prove its efficacy, reinforcing to patients that they know their body better than any medical professional and that they should be treated as an individual and as an equal in the healing process.[22,24]

"Big Pharma"

The first straw-man metaphor was not included in Willard's critique, but is often seen in the media: a health care industry entirely run by profit-mongering "Big Pharma." While this stems from legitimate concerns regarding the cost of medications, publication bias toward only positive results, and the role of the pharmaceutical industry in the funding of clinical trials, media outlets and natural cure web logs such as www.naturalnews.com push the metaphor even further with claims linking vaccinations to autism and shaking baby syndrome, and likening new drug prices to profiteering.[25–28] Anything not seen as natural, from vaccines to antibiotics, is Big Pharma's attempt to accumulate wealth at the expense of the unsuspecting public. Thus, the alternative medicine movement undermines the *ethos* of Western medicine and establishes a distrust of "unnatural" treatments. Health care has been compared to a "medical market," where all practitioners "bid" for the trust of their patients.[2] This establishes an *ethos* attack that sets up modern medicine as a conniving profit center, with the friendlier, seemingly straightforward, natural approach of alternative medicine standing in stark contrast.[2]

Doctors as deities

After medicine was professionalized, patients viewed their doctor, with medical training and certification, as the best source of medical knowledge, and their advice played the biggest role in recovery. In the "doctor as god" metaphor, alternative medicine amplifies this role to create a perception that Western medical professionals think they know more about their patient's body and how to heal it than the patient does.[22] This stems in part from the historical shift from looking at the history of medicine as a linear progression of accumulating knowledge, with illness as an ontological unit and the physician as an educator, toward illness being determined by multiple factors: social, economic, political, and religious.[2] The traditional medical view sets up a patriarchal and hierarchal system where the patient is passive and reliant upon the doctor for treatment to the point of "addiction" to their dictates.[22] Alternative rhetoric argues that this reliance on orders creates a natural tension, like Eve being told not to eat the "apple" in the garden, and ultimately modern doctors "'hex' the healing process because of their incredulity in the human body's capacity to maintain wellness."[22] This is especially designed to rub against the beliefs of an educated, spiritual audience accustomed to seeking the answers to their own questions, and making educated decisions based on those answers. Once this straw-man has been set up, alternative medicine is able to offer a more egalitarian relationship between a patient and practitioner, emphasizing that a patient knows their own body far better than any physician, and therefore is an integral part of the healing decision process.[22] In doing this, the physician's *ethos* is replaced with the patient's *ethos*, the physician's difficult-to-understand

scientific *logos* with the patient's natural *logos*.[22] This validates the patient's individual experience and beliefs and creates a relationship characterized by nurture, empathy, caring, listening, collaboration, and self-sufficiency – creating a powerful appeal to *pathos* and establishing traits also lauded in the spiritual community.[22] Modern practitioners tend to perpetuate this stereotype in their response to CAM claims, demanding evidence and answers to the "why" and "how" of these therapies. While these questions are justified, they further the image of practitioners needing to be an all-knowing authority figure in order to treat a patient.

Illness as war

Anecdotal evidence is also provided that Western physicians view medicine as war, where disease is an invasion that must be fought with the primary weapon of medications. In this, illness is the enemy, and practitioners are soldiers fighting for the victim. While this metaphor has been used by modern health care, CAM proponents amplify the metaphor, and then attack that amplification. Alternative medicine proponents like Andrew Weil caution that medications, like weapons, can be dangerous and backfire on the user, causing harm or provoking more aggressive tactics from the "enemy."[22] Then, they offer an alternative by stating that pain is not something to fight, but a messenger and a gift offering a clue to what is wrong in the patient's life, illuminating behaviors and lifestyle habits that produce negative effects for the patient. The patient subsequently works with their health care practitioner to address their entire life from that gift of pain.[22] This type of language is mirrored in spiritual communities; "trials," or difficult situations and circumstances, are seen as faith-strengthening gifts that point the seeker toward better answers to their life questions. When modern medicine responds to the claims of CAM in an antagonistic manner, demanding evidence that therapies work, it plays into this straw-man of aggression and militaristic strategy that alternative medicine has set up in order to discredit western medical methodologies.

Body as machine

The final straw-man argument, the doctor as an engineer, can be traced back as far as Renee Descartes, a philosopher who first posited that the body was a machine, separate from the mind.[22] Physicians do use some of the components of this philosophy as they treat patients, but alternative medicine exaggerates this method by arguing that modern medicine views the patient as a machine to be fixed, just as a mechanic may repair a car.[22] They claim that medical treatment relies on technology to treat separate parts of the body that can be detected as broken.[22] Modern medicine, in this straw-man metaphor, attempts to control or quantify every variable, leading to over medicalization and overtreatment.[22] Dean Ornish points to bypass surgery as an example – it fixes a plumbing problem, but is a temporary fix and does nothing to address the lifestyle or the totality of the problem of heart disease.[22] In response to what they view as a brushing aside of the role of mind, emotions, and the entire person in health, alternative medicine argues that the body and spirit must be viewed as a whole, as a part of a wider balance process.[22] They argue that harmony and balance are needed, engaging the mind in the process of healing in order to regain homeostasis in both health and life.[22] In this view, healing is restoration, and a chance to change how one handles stress, relationships, and daily life in order to change harmful habits and replace them with healthier ones.[22] This warmth and holistic mentality provides a sharp contrast to the *logos* of modern medicine, painted as objective, distant, statistical, and cold. Whereas modern medicine seems to create a deep fissure between science and religion, this provides a chance for the spiritual and physical aspects to work together toward healing.[24] Modern medicine feeds into this straw-man argument with its different specialties and focuses, with treatment of a single patient often being disjointed and fragmented. As a result, a disease can seem threatening to a patient, especially when the disease process is poorly understood. CAM offers empowerment to this patient who feels frightened, disenfranchised, and disconnected from their practitioner.[24]

Role of the pharmacist

All four of the aforementioned metaphors work together to create a persuasive appeal to the characteristics of a typical CAM user, as presented by the authors in Table 4. Due to their accessibility, pharmacists have several opportunities to counteract these straw-men in their everyday encounters with patients. Ideas for specific responses to each of the metaphors are detailed below.

Table 4
Alternative medicine's specific appeals to characteristics of its user base

CAM user trait	CAM rhetorical appeal
Female	Appeals to the traditional feminine relationship traits and role (nurture, caring)
College-educated	Establishes the patient as knowing their own body, enables them to participate more in the care decision process
Spiritual	Appeals to sense of being a part of something bigger, to disease having a larger purpose, to a sense of unity and involvement of the mind in healing
Lower emotional role functioning	Provides a feeling of empowerment in contrast to the disenfranchisement of western medicine
Lower perceived health	Provides hope of some treatment in area where modern medicine has incomplete knowledge or therapeutic modalities
	Lifestyle changes give patient something to focus on, empowers them to do something
Transformational experience	Offers a transformed view of medicine
Holistic view of health problems	Offers a holistic, not disjointed, view of health and healing

"Big Pharma"

Addressing this straw-man as pharmacists can be difficult with the rising prices of health care. Additionally, it is important to not dismiss patient concerns about side effects, efficacy, or cost. However, pharmacists can educate patients about the incidence of side effects and how to manage them, what treatments are more effective, and some potential cost-saving options. Education can also be accomplished with patients seeking self-care therapies in an effort to save money. This education can include the different treatment options, the efficacy of those options, and how to choose a quality product. Pharmacists can also take advantage of opportunities to educate patients about the process of reimbursement and expense of research and development or collaborate with primary care providers to ensure cost-effectiveness factors in to treatment decisions. Additionally, continued education and promotion regarding the safety of vaccines and the severity of the diseases they prevent can be provided in a pharmacy setting.

Doctors as deities

Addressing this metaphor has already begun with the rising popularity of motivational interviewing (MI) techniques.[29] MI is a patient-centered style of counseling that focuses on eliciting change talk from the client or patient.[30] The overall goal of MI is to have the patient argue for a positive behavior change, increasing the likeliness they will enact the change.[29,30] It originated in chemical dependency counseling, but has since demonstrated efficacy in both reducing other maladaptive health behaviors and promoting positive health behaviors such as weight and blood pressure control, or antiretroviral regimen adherence.[29,31,32] MI centers around four key principles: expressing empathy, rolling with resistance, supporting self-efficacy, and developing discrepancy. Expressing empathy involves both empathetic and reflective listening, enabling the patient to feel respected and heard. Rolling with resistance consists of avoiding nonconstructive arguing, since a "battle of the wills" will end with the client defending their current behaviors, rather than arguing for a positive change. Supporting self-efficacy of the patient involves respecting their autonomy and making suggestions in a collaborative manner rather than a directive one. The final principle, developing discrepancy, is often used within the context of chemical dependence to highlight the difference between a patient's life goals and the self-destructive nature of their chemical dependency.[30] Patient interactions that follow the MI spirit will be collaborative rather than authoritarian, will evoke the patient's own motivation rather than trying to instill a motivation, and honor the patient's autonomy.[29]

Within the context of the "doctor as deity" straw-man, the collaborative spirit of MI provides a contrast to the traditional authoritarian nature of provider–patient interactions. Pharmacists can build this collaborative spirit through counseling activities such as self-care advice. Presenting a patient with information about different treatment options and encouraging the patient to choose the treatment that works best for them respects patient autonomy and builds a more egalitarian relationship, similar to CAM's approach.[29,30] As a part of this collaborative interaction, practicing empathetic listening is key to communicate respect for the patient, which in turn may help bridge the gap between health care professionals and patients.[30]

Illness as war

One of the easiest ways to counteract the "illness as war" metaphor is to avoid using military metaphors when talking about medicine. Replacing terminology like "fighting infection" with "treating infection" or "on the front lines" with "easy accessibility" is a simple step that can begin to counteract this straw-man. Additionally, the pharmacist can play a unique role in addressing this metaphor as a patient educator. Pharmacists, the medication experts, can ensure patients concerned about the "backfiring" of medications are educated about side effect prevalence, severity, and management – whether for a medication approved by a regulatory body or for an over the counter supplement. All practitioners, pharmacists included, can utilize the MI technique of eliciting the patient's motivation for change and collaborating to create a lifestyle change plan based on the patient's goals in place of "fighting" for one treatment.[29] Rolling with resistance rather than engaging in a "battle of the wills" may also reduce any potential battlefield atmosphere of medical treatment. Additionally, a more collaborative approach allows professionals to affirm the validity of pain as a message in cases like angina or muscle strains. In these types of cases, taking time to explain the importance of listening to the body's cue to slow down and rest may also help to counter the straw-man. All of these techniques may help correct the antagonistic spirit associated with modern medicine while addressing patient concerns.

Body as machine

Pharmacists have the potential to play a key role in countering the segmented atmosphere of Western medicine. Since community pharmacists especially see most of a patient's medications from all of their doctors (except in the case of polypharmacy), they have the opportunity to check medication regimens for interactions. Additionally, pharmacists can educate patients about how their various medications work to impact their disease states, and how lifestyle changes can work together with medications to improve their health (as in the case of Dean Ornish's bypass surgery example).[22] This helps to unify the various specialists a patient might see, and to bring in a more holistic atmosphere to medicine.

This process has already begun in the form of Medication Therapy Management (MTM). MTM is a group of services focused on optimizing therapeutic outcomes for an individual patient apart from the dispensing or provision of a medication.[33] In this model, the focus of care shifts from the product to the individual as a pharmacist works with the patient to review their medications. The pharmacist then collaborates with both the patient and other health care professionals to optimize medication therapies and ultimately improve patient outcomes.[33] MTM often consists of an annual face-to-face comprehensive medication assessment in which the pharmacist reviews all medications taken by a patient, including nonprescription medications and herbal products. Issues are identified, and the pharmacist communicates with other health care providers to address any identified problems.[33] After each visit, the patient is provided with a personal medication record of all medications currently being taken as well as a medication-related action plan with any changes the patient is going to make after the visit. Follow-up appointments are scheduled with the patient as needed between annual reviews.[33] This is a key opportunity to build a collaborative relationship with the patient and practice MI techniques in the patient encounter to more effectively elicit change and address the other straw-men.

Summary

Gaining this understanding empowers medical professionals, especially pharmacists, to appreciate the role they can play in countering the appeal of quackery. By using methods like patient education, motivational interviewing, and medication therapy management, the straw-man metaphors set up by alternative medicine can be countered, and modern practitioners can create a more welcoming medical environment. Since not every intervention will work with every patient, it is important to practice empathetic listening and using cues from the patient to alter the counseling approach for what will work the best for them.[29] In order to be effective at a motivational interviewing approach, it is imperative for professionals to receive continuing education, including feedback and coaching, in the techniques mentioned.[29]

Future research

While several possible techniques for countering the straw-man appeal of CAM, there is a paucity of research addressing the effectiveness of these strategies. Therefore, one area for further research would be ability of the techniques mentioned to

alter patient perception of pharmacists and the health care system. Additionally, studies could be done investigating the correlation between the amount and type of advertising used to promote CAM therapies and the corresponding utilization of advertised CAM. In the same vein, it would be interesting to compare the rhetoric used to advertise integrative medicine and that used to promote alternative treatments to see what differences exist.

Finally, further basic science research should be done into the efficacy and safety of various CAM therapies. Rather than the burden of proof being on Western medicine to prove CAM does not work, that burden should rest with CAM proponents. This research could also be used to create a better distinction between the "proven" and "unproven" CAM in an effort to more easily distinguish legitimate therapies from pseudomedicine. Unfortunately, funding for such research is limited, and will likely continue to be a challenge.

Conclusion

Those who use alternative medicine may be more susceptible to its lure because the rhetoric of these movements appears to be targeted at them. Quackery especially relies heavily on *pathos* arguments for persuasion while undermining the *ethos* of modern medicine, appealing to the desire for independent thought process in the spiritually minded, more highly educated demographic. This sets up a moral dichotomy in medicine, where modern medicine is seen as cold, artificial, toxic, and disconnected in comparison to the more personable, natural, pure, and holistic approach of alternative medicine that empowers a patient to be a part of their own healing. Knowing this rhetoric, Western medical practitioners should adjust their interactions with patients to educate, inform, and empower their own patients to be able to make lifestyle changes as well as providing medication therapy. Because of the limits of current knowledge, there always will be charlatan practitioners that seek to capitalize on health fads and situations where modern medicine has limited options. Hopefully, educating on the rhetoric and marketing methodologies of quackery can provide all patients with the ability to recognize false hope where it is offered.

Acknowledgments

The authors wish to heartily thank Ben Wilson, MD, for his assistance in brainstorming for this project as well as Aleda Chen, PharmD, PhD, for editing an earlier draft of this manuscript. This work was unfunded.

References

1. Porter R. Before the fringe: quack medicine in Georgian England. *Hist Today* 1986;36:16–22.
2. Huisman F. Shaping the medical market: on the construction of quackery and folk medicine in Dutch historiography. *Med Hist* 1999;43:359–375.
3. *Quackery-related Definitions*, 2014. http://ncahf.org/pp/definitions.html. Accessed 13.05.14.
4. Mehlman MJ. Quackery. *Am J Law Med* 2005;31:349–363.
5. Cassileth BR, Yarett IR. Cancer quackery: the persistent popularity of useless, irrational 'alternative' treatments. *Oncology (Williston Park)* 2012;26:754–758.
6. Hulisz D. Efficacy of zinc against common cold viruses: an overview. *J Am Pharm Assoc* 2004;44:594–603.
7. Sherman KJ, Cherkin DC, Erro J, Miglioretti DL, Deyo RA. Comparing yoga, exercise, and a self-care book for chronic low back pain: a randomized, controlled trial. *Ann Intern Med* 2005;143:849–856.
8. Ford AC, Talley NJ, Spiegel BM, et al. Effect of fibre, antispasmodics, and peppermint oil in the treatment of irritable bowel syndrome: systematic review and meta-analysis. *BMJ* 2008;337:a2313.
9. *What is Complementary and Alternative Medicine?*, 2014. http://nccam.nih.gov/sites/nccam.nih.gov/files/D347_05-25-2012.pdf. Accessed 22.07.14.
10. Wieland LS, Manheimer E, Berman BM. Development and classification of an operational definition of complementary and alternative medicine for the Cochrane Collaboration. *Altern Ther Health Med* 2011;17:50–59.
11. Palinkas LA, Kabongo MLSurfnet Study Group. The use of complementary and alternative medicine by primary care patients. *J Fam Pract* 2000;49:1121–1132.
12. Barnes PM, Powell-Griner E, McFann K, Nahin RL. Complementary and alternative medicine use among adults: United States, 2002. *Semin Integr Med* 2004;2:54–71.
13. Frass M, Strassl RP, Friehs H, Müllner M, Kundi M, Kaye AD. Use and acceptance of complementary and alternative medicine among the general population and medical personnel: a systematic review. *Ochsner J* 2012;12:45–56.
14. Ryan A, Wilson S, Taylor A, Greenfield S. Factors associated with self-care activities among adults in the United Kingdom: a systematic review. *BMC Public Health* 2009;9:96.
15. Astin JA. Why patients use alternative medicine: results of a national study. *J Am Med Assoc* 1998;279:1548–1553.

16. Hsiao A, Wong MD, Goldstein MS, et al. Variation in complementary and alternative medicine (CAM) use across racial/ethnic groups and the development of ethnic-specific measures of CAM use. *J Altern Complement Med* 2006;12:281–290.
17. King JE, Crowther MR. The measurement of religiosity and spirituality: examples and issues from psychology. *J Organ Change Manage* 2004;17:83–101.
18. Eisenberg DM, Kessler RC, Foster C, Norlock FE, Calkins DR, Delbanco TL. Unconventional medicine in the United States–prevalence, costs, and patterns of use. *N Engl J Med* 1993;328:246–252.
19. Braet AC. Ethos, pathos and logos in Aristotle's rhetoric: a re-examination. *Argumentation* 1992;6: 307–320.
20. Storbeck J, Clore GL. On the interdependence of cognition and emotion. *Cogn Emot* 2007;21:1212–1237.
21. Teal A. Quacks and hacks: Georgian medicine and the power of advertising. *Lancet* 2014;383:404–405.
22. Willard BE. Feminist interventions in biomedical discourse: an analysis of the rhetoric of integrative medicine. *Women's Stud Commun* 2005;28:115–148.
23. Talisse R, Aikin SF. Two forms of the straw man. *Argumentation* 2006;20:345–352.
24. Kaptchuk TJ, Eisenberg DM. The persuasive appeal of alternative medicine. *Ann Intern Med* 1998;129: 1061–1065.
25. Washington H. *Flacking for Big Pharma*. The American Scholar; 2012.
26. Ferner RE. The influence of big pharma. *BMJ* 2005; 330:855–856.
27. Sackett DL, Oxman AD. HARLOT plc: an amalgamation of the world's two oldest professions. *BMJ* 2003;327:1442–1445.
28. *Generic Drug Price Spikes Demand Congressional Hearing, Pharmacists Say*, 2014. http://www.ncpanet.org/newsroom/news-releases/2014/01/08/generic-drug-price-spikes-demand-congressional-hearing-pharmacists-say. Accessed 02.06.14.
29. Miller WR, Rose GS. Toward a theory of motivational interviewing. *Am Psychol* 2009;64:527.
30. Rollnick S, Allison J. Motivational interviewing. In: Heather N, Stockwell T, eds. *The Essential Handbook of Treatment and Prevention of Alcohol Problems*. West Sussex, England: John Wiley & Sons Ltd; 2004. p. 105–115.
31. Rubak S, Sandbaek A, Lauritzen T, Christensen B. Motivational interviewing: a systematic review and meta-analysis. *Br J Gen Pract* 2005;55:305–312.
32. DiIorio C, McCarty F, Resnicow K, et al. Using motivational interviewing to promote adherence to antiretroviral medications: a randomized controlled study. *AIDS Care* 2008;20:273–283.
33. American Pharmacists Association, National Association of Chain Drug Stores Foundation. Medication therapy management in pharmacy practice: core elements of an MTM service model (version 2.0). *J Am Pharm Assoc* 2008;48:341–353.