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This artwork portrays conventional medicine’s coexistence with complementary and alternative medicines (CAMs), which are currently gaining more recognition within the health care fields. The image showing small pills, commonly used in mainstream medicine, placed on “pressure points” at the fingertips illustrates a union between the two therapeutic approaches. Circular, coloured patches that are joined together in the foreground convey connections between pressure points on the body surface and different areas within the individual, a concept associated with reflexology. The increasing popularity of many CAMs, such as herbal remedies, is prompting more research to identify potential benefits and harms with their use.

Phoebe Cheng, Vancouver Fraser Medical Program, UBC Faculty of Medicine, Vancouver, BC
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Incorporating Complementary and Alternative Medicine into Canadian Undergraduate Medical Education

Noren Khamis*, BSc; Amanda Ribeiro*, BSc (Hons)

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*Corresponding authors: nkhamis@alumni.ubc.ca; a.ribeiro@alumni.ubc.ca

One solution to the need for increased CAM training into undergraduate medical education. Research shows that a startling 84% of physicians feel that increased CAM education was needed during their training in order to adequately address patients’ concerns. Similarly, a California study showed that 61% of physicians do not believe that they have adequate knowledge about CAM, while 81% report a desire for more education about CAM safety and efficacy. The Canadian undergraduate medical education system is focused on seven key competencies, as outlined in the CanMEDS Physician Competency Framework: Professional, Communicator, Collaborator, Manager; Health Advocate, Scholar, and Medical Expert. Physicians who are CAM–literate might be better suited to excel in each of these areas by having the knowledge needed to communicate effectively with patients regarding their CAM use. This enhanced knowledge and communication will enable physicians to better support their patients, potentially leading to improved patient outcomes. Furthermore, due to the cultural and personal aspects of many of these therapies, training physicians to be sensitive and accepting toward CAM use among their patient population can improve cultural sensitivity and appreciation for patient–centred care.

The focus of these diverse medical practices on total–body wellness and on self–care might also encourage medical students to embrace concepts of wellness and disease prevention, which are proven to improve patient health outcomes and to reduce healthcare costs. Exposing students to fundamental aspects of CAM early in their medical career will allow them to build on this basic knowledge throughout their training and to ensure that they are well–equipped to speak with patients and other healthcare providers about this important topic.

Currently, no national guidelines exist for the incorporation of CAM teaching into Canadian undergraduate medical education. The only study ever published on this topic found that 13 of the 16 medical schools across the country in 1999 incorporated CAM education as a required component of their curriculum, while the remaining 3 were planning to do so in the future. To explore the current status of CAM education among future healthcare professionals, the Complementary and Alternative Medicine in Undergraduate Medical Education (CAM in UME) project was founded in 2006 with a total budget of $ 77,750. In 2013, the National Advisory

Open communication between patient and provider regarding current treatment options is an important step in ensuring optimal patient safety and satisfaction. Furthermore, it facilitates dialogue between physicians and other health care providers, paving the way toward collaborative care.
Committee for the CAM in UME project compiled a list of CAM curricula across Canadian medical schools. The approach taken by different schools was found to vary widely from small group discussions to lecture–based instruction to student–directed projects. On one hand, this lack of a unified approach to CAM education reflects an inability of Canadian medical schools to come to a consensus on the most salient aspects of CAM or the method to transmit these aspects to students; on the other hand, there is value in generating a cohort of future physicians with different areas of expertise in CAM. Furthermore, the heterogeneity of CAM education reflects the diversity of teaching approaches and learning needs of students across the individualized curriculum of each medical school. Given this diversity, it might prove difficult to enforce standardized methods of CAM teaching; however, at the very minimum, there should be a set of core CAM competencies that all Canadian medical graduates must master; similar to the CanMED roles.

A goal of the CAM in UME project is to encourage undergraduate medical educators to develop and expand the CAM aspect of their curricula. The project’s website provides CAM–related learning objectives and resources to facilitate knowledge translation about patient use of CAM. Because there is no national policy on CAM education among healthcare providers, this project provides a hopeful avenue for expanding the knowledge base and communicative abilities of future physicians regarding non–conventional medical therapies. In 2006, the project published a comprehensive overview of the rationale for integrating CAM education into undergraduate medical training along with a list of competencies that students should master; however, it is unclear how much influence this resource has had on medical educators or on improving CAM knowledge among medical students. The project’s limited role to medical schools as a guiding hand rather than as a mandated program suggests that the project needs greater momentum and more promotion to medical educators in order to enact meaningful change.

While the incorporation of CAM into undergraduate medical education certainly has its benefits, it is not without challenges. For one, it is difficult to provide a comprehensive overview of the subject due to the extensive scope of CAM and the variability of its usage across different geographical regions, age groups, and cultures. Variability also exists in the extent to which schools might educate students about CAM. On one extreme, schools can settle for the bare minimum by teaching students how to communicate effectively with patients who use CAM and how to seek out resources on the safety and efficacy of different practices. Alternatively, schools can delve deeper by preparing students to understand the different types of CAM practiced (along with their associated benefits and limitations, interactions with conventional medical therapies, and harm reduction), to advise patients about CAM therapy, to refer patients to alternative practitioners, and to even practice CAM therapy as an adjunct to their medical practice. No matter which option schools choose, they must apply the same rigour they would use to select other curriculum material in deciding what to teach and what level of evidence is sufficient to teach a type of CAM therapy to student doctors. In fact, a correspondence letter published in the Canadian Family Physician journal raises the concern that including CAM therapy in undergraduate medical education may be perceived as wrongly advocating for therapies which lack sufficient evidence. Furthermore, as medical schools face limited funding and curriculum time, increasing the time spent on CAM education has the trade–off of limiting curriculum focus on other important topics. Schools must also find well–trained educators who have extensive knowledge of CAM and its relation to conventional Western medicine. While there are benefits to involving CAM practitioners in the design and teaching of these modules, it is important to ensure that all those involved in developing and delivering the curriculum remain impartial regarding the benefits and drawbacks of CAM. Another important issue is the fundamental difference between the evidence–based, biological understanding of the human body and disease in conventional medical education compared to the holistic approach to patient care adopted by CAM. This distinction leads to one of the most important and challenging barriers—that of resistance on the part of medical school program leaders due to their personal biases against CAM and their inability to fully appreciate the differences in scope and value of the two approaches.
Just as challenges exist with facilitating incorporation of CAM into medical curricula, there is also difficulty in assessing the outcomes of these initiatives. Options for evaluating student acquisition of knowledge can range from subjective self-assessments to objective standardized tests to practical examinations in which faculty members observe students’ behaviour and approach. With the wide range of options available, it is important that evaluation is consistent with the nature of the material taught and the manner in which it is taught. Assessment of CAM education must ultimately determine whether there is any positive change in physicians’ behaviour and patient outcomes; unfortunately, accurate assessment requires long-term monitoring and complex measurement strategies.

Assessment of CAM education must ultimately determine whether there is any positive change in physicians’ behaviour and patient outcomes; unfortunately, accurate assessment requires long-term monitoring and complex measurement strategies.

Looking across the border to CAM education in the U.S., it is not surprising to see similar measures being undertaken. In 1999, the National Centre for Complementary and Alternative Medicine at the National Institute of Health invested $22.5 million in funding 15 grants to medical schools, nursing schools, and to the American Medical Student Association with the goal of encouraging the incorporation of CAM education into their curricula. Evaluation of these projects revealed that CAM training increased students’ self-awareness and self-care, suggesting that the study of CAM can enhance overall physician performance, not only in the domain of CAM therapies, but also in the practice of conventional medicine. Another study conducted in a California medical school showed that students valued an experiential and hands-on delivery of CAM material over a didactic-focused curriculum. By drawing from the innovative approaches to CAM education arising from the U.S. and the rich volume of evaluative studies, Canadian medical schools can benefit from the expertise of American schools in shaping and evaluating their own CAM modules.

Overall, there is a growing trend toward incorporating elements of CAM into conventional undergraduate medical education in Canada. The focus of discussion should now shift away from whether there is a need to educate medical students about CAM toward developing methods, assessing integration, and identifying and overcoming barriers related to incorporating CAM into the medical curricula. One approach to facilitating this integration is the development and enforcement of national competencies for Canadian undergraduate medical students. Furthermore, while most curricula currently focus exclusively on making students more aware of the different varieties of CAM and their prevalence, schools might consider adding well-evidenced CAM to the body of medical therapies taught to students and practiced by physicians. This endorsement of CAMs by the medical profession will lead the way toward integrative care.

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references
An Overview of Complementary and Alternative Medicines

Zachary Stansfield a,*, BSc; Jieqing Xu a,*, BSc; Ruphen Shaw a,*, BSc; Andrew Pursell b,*, PhD

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Corresponding authors: zachary.stansfield@alumni.ubc.ca; jxu@alumni.ubc.ca

MD Candidate 2018, Faculty of Medicine, University of British Columbia, Vancouver, BC

MD Candidate 2017, Faculty of Medicine, University of British Columbia, Vancouver, BC

*Co-first authorship

Introduction

Complementary and alternative medicines (CAMs) represent a diverse set of health practices that typically lie outside mainstream medicine. While these practices are widely used by Canadians, physicians may have a limited knowledge about their use, in many cases because of a lack of acceptance by medical communities. For example, the College of Physicians and Surgeons of BC Guidelines suggest caution regarding the use of CAMs by physicians and label these practices as “generally unproven.” Strictly speaking, this statement has some validity. Proponents of evidence-based medicine note that appropriate medical practice should be guided by two key elements: “clinical experience” and the “best available external clinical evidence.”

In this current issue of the University of British Columbia Medical Journal (UBCMJ), Dr. Henry Lu, a North American leader in the practice of Traditional Chinese Medicine (TCM), explains how, traditionally, CAM practitioners in his field have tended to rely almost exclusively on clinical judgment. Moreover, even as research efforts on CAMs have expanded in the United States there are still few CAM practices which are supported by high-quality external evidence. For this reason, medical practitioners have a good reason to familiarize themselves with the diversity of CAMs, as well as the current body of available evidence, so that they may better counsel patients who choose to seek out these practices. This article does not aim to evaluate the effectiveness, safety or scientific validity of selected CAM practices, but instead aims to provide a descriptive overview of how and why these practices are used.

In order to adequately classify these practices, it is necessary to first properly define conventional medical practice. For our purposes, we have defined “conventional medicine” as a set of practices derived from traditional Western medicine, which have evolved under the influences of biomedical and evidence-based approaches, and which currently receive broad international acceptance as a primary mode of medical care. In contrast, CAMs are marked by their diversity, lack of standardization and inconsistent acceptance by conventional practitioners. An extensive 2005 report by the Institute of Medicine and funded by the United States’ National Center for Complementary and Integrative Medicine (NCCIH, formerly NCCAM) summarized the status of CAMs as non-normative “health systems, modalities, and practices and their accompanying theories and beliefs” that may sometimes overlap with mainstream practices. Perhaps the most popular classification approach has been developed by the NCCIH, which organizes CAMs into broad systems of practice and treatment methods: 1) alternative medical systems; 2) mind–body interventions; 3) biologically–based treatments; 4) manipulative and body–based methods; and 5) energy therapies.

Here, we have utilized this classification system to organize a discussion of CAM practices and the common doctrines that serve to guide their use. Our aim is to provide a simple overview of these practices commonly used in Canada for early–career medical professionals who lack a significant background in this area.

I. Complementary and Alternative Medical Systems

Aboriginal Medicines refer to a diverse set of medical practices developed by North American Indigenous peoples and which emphasize holistic aspects of health. Spiritual beliefs about the interconnectedness of persons with other animals and the universe are intricately linked to Indigenous medical practice, which aims to promote physical, social, and spiritual health.

Practices may include the use of herbal medicines, sweat baths or lodges, as well as psychological and spiritual counselling by elders or specialized practitioners and through ritual ceremony.

Traditional Chinese Medicine refers to a set of health practices first documented in text over two thousand years ago in China, and which are still widely practised today. Core principles of TCM include the belief in an interconnectedness of individuals to the natural environment (holism), and the belief that a vital substance called “qi” travels through specific points in the body known as meridians, thereby maintaining homeostatic balance. This state of internal balanced is conceptualized as a harmony between “Yin” and “Yang.”

Practitioners of TCM focus heavily on dietary and lifestyle advice for disease prevention, and perform a wide array of herbal treatments and body manipulation practices such as acupuncture.

Naturopathy is derived from 19th–century European “natural healing” practices that were first brought to North America by Benedict Lust in 1902. The core principles of naturopathy emphasize preventative medicine, self–healing by the body and physiological balance; all of which are issues that practitioners aim to address before attempting to correct pathology.

The scope of naturopathic practice is broad and variable. Naturopathic doctors (NDs) report key roles to include the use of herbal medicine, homeopathy, nutritional counselling, and supplementation, but also report that they frequently order laboratory tests, provide psychological counselling,
In general, these therapies involve the use of plants to make pharmacologically active preparations intended to promote health or treat disease. Among the many pharmaceuticals utilized in conventional medicine are compounds similar to or refined from these natural products. As such, this category of treatments includes practices that contribute to many medical systems including conventional medicine, naturopathic medicine, and Chinese medicine.

In addition to therapies identified by the Cochrane CAM Field organization of complementary and alternative therapies (completed in 2009), an updated list of biologically–based therapies includes chelation therapy, hydrotherapy, nutrition therapy, herbal medicine, prolotherapy, and speleotherapy.

Chelation therapy involves using synthetic, metal-binding chemicals such as EDTA to remove certain cations and heavy metals from the body, as these materials are felt by practitioners to contribute to a state of ill health. Originally developed as a technique to treat lead poisoning, chelation therapy is now being used as a therapy for a variety of ailments. Hydrotherapy includes the practice of bathing in or consuming “medicinal waters” or water that has been heated to a specific temperature, as well as spa therapy, which aims to promote tissue growth and reduce pain. Nutrition therapy encompasses specialized diets and nutritional supplements aimed at optimizing health. Herbal medicine centres on the use of plants to make pharmacologically active preparations intended to promote health or treat disease. Four general types of herbal medicine exist: Asian, European, Indigenous, and Neo–Western. Prolotherapy, also known as proliferation therapy, involves the deliberate injection of irritants into an anatomical space, with the intention of inducing inflammation and tissue proliferation — processes which are claimed to subsequently restore function and relieve pain.

Spleotherapy is the use of subterranean environments and their specific air characteristics in the treatment of airway disease. Specific qualities of the environment that are thought to be important are air quality, including humidity, salt, and mineral content, air temperature, and radiation.

2. Mind–Body Interventions

Mind–body therapies encompass a large number of practices that include meditation, hypnosis, biofeedback, and guided imagery. These therapies rest on the belief that a person’s mental state and thought processes can influence and, in part, contribute to their popularity as CAMs. In general, these therapies are used as complementary rather than stand–alone treatments, and are most likely to be used for anxiety, chronic pain, and psychiatric disorders.

Meditation is an ancient practice originally stemming from religious traditions including Hinduism and Buddhism. It encompasses a wide variety of techniques, including yoga, Tai Chi, Mantra meditation, and mindfulness meditation. Despite this diversity, all meditative practices share in common a reliance upon the use of: 1) specific and clearly–defined techniques; 2) muscle relaxation techniques; 3) logic relaxation techniques; 4) self–induced states; and 5) self–focus skills. “Self–focus” refers to a means of controlling one’s attention, commonly through focusing on breathing or chants. Meditation is frequently used to assist patients suffering from disorders such as depression, anxiety, and substance abuse, as well as stress– or anxiety–induced disorders.

Hypnosis is defined as a state of altered consciousness and heightened suggestibility. While in a hypnotic trance, the hypnotherapist may make therapeutic suggestions to the patient, either modifying a patient’s perception of sensations (such as pain) or behaviours during and after the session. Hypnosis is also used as a psychoanalytic tool, as well as to promote relaxation and decrease anxiety.

Biofeedback is a self–regulation technique that seeks to enhance the user’s awareness of bodily sensations by using devices to monitor physiological signals which can then be relayed back to the user. The aim of these practices is to provide patients with better conscious control over their physiological processes. Biofeedback is used in disorders such as incontinence, as well as for stress awareness and management.

Guided imagery practices also aim to use thought processes to influence physiological and psychological states. The user is placed into a state of deep relaxation and instructed to visualize herself as experiencing a specific physiological state. It is proposed that visualization during deep relaxation will produce positive physiological changes and will reduce negative cognition and emotions that may be evoked by a patient’s thoughts about her illness.

3. Biologically–Based Treatments

Biologically–based therapies represent a diverse array of treatments that incorporate herbal and food–based products, as well as the use of vitamins and other dietary supplements. These substances are broadly intended to promote health. Among the many pharmaceuticals utilized in conventional medicine are compounds similar to or refined from these natural products. As such, this category of treatments includes practices that contribute to many medical systems including conventional medicine, naturopathic medicine, and Chinese medicine.

4. Manipulative and Body–Based Methods

Body–based therapies rely on the belief that health can be improved through physical manipulation of the body. The origins of modern manipulative and body–based therapies can be found in a wide range of cultures from many parts of the world. The primary therapies in this category are chiropractic and massage therapy.
much of its philosophy. His philosophy consisted of beliefs including: 1) that the body has an “innate intelligence” that enables self-healing; 2) that dysfunctional (subluxated) joints interfere with the body’s innate intelligence and thus may contribute to disease processes; 3) that manipulation of the spine and other body parts can repair subluxated joints, thus restoring this state of innate intelligence. Therefore, chiropractors manipulate the body with the intent not only to correct neuromusculoskeletal problems, but also to alleviate systemic disorders. Despite the broad scope of application defined by this philosophy, the most common problems for which patients are treated by chiropractors are musculoskeletal complaints. Chiropractors can be broadly categorized as either “straights” or “mixers”. Straights adhere closely to the original principles put forth by Palmer, which means that they subscribe to the belief that subluxation is the primary cause of disease in general, and they believe in the importance of innate intelligence in maintaining health. Therefore, the therapeutic approach utilized by straights focuses almost exclusively on spinal manipulation. On the other hand, mixers generally do not believe Palmer’s model of innate intelligence to be correct, and treat subluxation as only one of many potential causes of illness. Mixers often incorporate mainstream medical techniques and beliefs into their practice and are representative of the vast majority of modern chiropractic practitioners.

As the public interest in these therapies remains strong, it is imperative that health care providers of all practices communicate inter-professionally in order to identify optimal practices that promote patient–centred care.

Massage therapy can trace its roots back to the ancient cultural practices of Greece, Rome, China, and India, among others. Massage is defined as the manual manipulation of soft tissue and is practised by holding, moving, or applying pressure to these tissues. In modern practice, massage therapy incorporates a broad range of practices, but most commonly refers to Swedish massage. Practitioners of massage therapy believe that these practices produce benefit by activating the parasympathetic nervous system, promoting restorative sleep, interfering with pain transmission, and influencing body chemistry. Additionally, the increased interpersonal attention experienced by patients undergoing massage therapy as opposed to mainstream treatments may also contribute to its benefit. Massage therapy is most commonly used for stress, anxiety, insomnia, musculoskeletal pain, as well as to improve blood flow, and to facilitate breathing in patients with respiratory dysfunction.

5. Energy Therapies

Energy medicine refers to a broad category of practices encompassing therapies proposed to adjust and restore the balance of energy fields to achieve health, including acupuncture, static magnetic therapy, and Reiki therapy.

Acupuncture, a therapy involving the use of thin needles inserted into specific sites throughout the body, is a fundamental element of TCM, and relies heavily upon the concept of qi. It is proposed that disruption or blockage of qi can lead to disharmony within the body, exhibited as pain and illness, and that practitioners may restore the energy equilibrium necessary for health by inserting needles at appropriate sites along the meridians.

Another component of TCM that aims to enhance qi is qigong, a practice which integrates breathing exercises, mindfulness, postural awareness, fluid movement, and meditation in order to achieve a state of relaxation. The balance of qi is believed to allow the body to optimize its self-healing functions and facilitate a process of health restoration.

Magnetic therapy, a modality based on energy from magnetic fields, is a prevalent form of pain therapy. Static magnets, which produce unchanging magnetic fields, are usually made from iron or an alloy and are commercially available in variable strengths. Given the prevalence of electrical activity in the body, this therapy stemmed from the belief that pathology, caused by a misalignment of the body’s natural magnetic fields, could be corrected by subtle application of magnetic forces. A variety of physiological mechanisms have also been proposed, which range from improving vascular circulation to lowering the resting membrane potential of cells.

Reiki, a therapy developed in Japan in the 19th century, is believed to harness “universal life energy” as a modality to restore harmony, balance, and strength, and to promote health. A spiritually–trained practitioner claims to channel Reiki energy to facilitate a patient’s self–healing capacity by placing their hands on or above a specific area, thereby allowing the energy to flow to necessary regions in the body. Since illness is proposed to arise from energy blockage, this therapeutic process is believed to remove the obstruction and enhance the body’s inherent healing force to restore energy balance, leading to recovery and health.

Conclusion

This classification of doctrines aims to categorize CAMs that have parallel therapeutic principles in order to delineate the variety of practices available to patients. By addressing both the rationale and scope of each modality, this simple overview serves as a foundation to help readers further explore this issue of the UBCMJ. Relevant articles, published alongside this commentary, examine a range of topics including the regulation of CAM practitioners and products, the need for high quality evidence to evaluate the use of CAM practices, as well as statements from CAM practitioners and integrative physicians describing their practices and philosophies. As physicians develop an improved knowledge base around the scope and rationale of CAM practices — including known benefits, limitations, and areas where better knowledge is needed.
disclosures

The authors do not have any conflicts of interest.

references


Natural Health Products: The Gap between Perceptions and Reality

Emily is a 49-year-old female who takes a number of prescription medications, including warfarin. She has noted feeling “down” over the past several weeks, and, while motivated to do something to improve her quality of life, she is reluctant to add to the number of medications she already takes. She hears about a herbal product named St. John’s Wort (SJW). Unlike prescription antidepressants, which are synthetically-derived chemicals, she understands that SJW comes from a plant, and she believes that this herbal product presents a safer, more natural option for managing her depressed mood. After some deliberation, she heads to her local pharmacy, purchases a bottle of SJW, and begins taking it that day.

The above scenario, with obvious variations for indication and product choice, likely plays out countless times every day across Canada. A given patient self-selects a natural health product (NHP), whether in a pharmacy, on the internet, or in a health food store, under the assumption that a natural, plant-derived product always presents a safer alternative to synthetically-derived prescription drugs. We know this is a common scenario because the NHP industry consistently records annual sales topping a billion dollars in Canada. However, as the above scenario plays out, there are a number of assumptions here that are not supported.

To a chemist, there is no difference between SJW and the prescription drugs that a patient, such as Emily, could potentially take for a given condition. SJW is a chemical derived from the lovely flower, Hypericum perforatum. However, when analyzed by a chemist, it has a chemical structure not unlike an antidepressant synthesized in the laboratory, and though it is a naturally-derived substance, SJW should not automatically be assumed to be safer than its synthetic counterparts. In fact, there are a number of plants capable of causing great harm to humans and a number of synthesized drugs that can do the same.

A pharmacologist, too, would draw no distinction between SJW and synthetic prescription drugs, including those in its therapeutic class. Although SJW has a variety of molecular targets in the body, its key mechanism in treating depression is believed to be inhibition of reuptake of neurotransmitters, such as serotonin—this is the same mechanism by which many of the widely-used antidepressants work. Much like other antidepressants, SJW elicits side effects and importantly, in Emily’s case, it is an inducer of cytochrome P450 enzymes and p-glycoprotein, an intestinal efflux pump that is increasingly implicated in a number of important drug–drug interactions.

One of the clear distinctions between SJW and other antidepressants is that it can be readily obtained without consulting a health care provider, most notably a physician or a pharmacist. There are a number of options that might have proven beneficial for Emily, all with far less risk of harm than SJW. If she is suffering from mild depression, non-pharmacological interventions include psychotherapy, exercise, phototherapy, and a review of her current medications to ensure that none are responsible for her symptoms.

In opting for what Emily believes to be a natural intervention—that she might perceive as “non-pharmacological”—she has unwittingly chosen a path that is the opposite of what she was intending. Perhaps more concerning, when patients with more severe depression self-select products like SJW, they are less likely to be assessed or followed by a physician, and therefore, lack the supports they might need to monitor their clinical status and to ensure that they are not at risk of self-harm or of harming others.

Finally, to an evidence-based practitioner, what distinguishes NHPs from their synthetic counterparts is the general lack of evidence supporting their efficacy or safety. SJW is one of the most studied NHPs and it is generally accepted that SJW is likely superior to placebo for mild to moderate depression. However, there is still some uncertainty about this and about its associated harms because studies of SJW are heterogeneous in both design and results. For the majority of NHPs, the evidence is lacking.

The question is, then, why—well into the 21st century—do we still have such a gap between perceptions of NHPs and reality? Though there is no easy solution to this problem, there are clues as to why it exists. With rare exceptions, NHPs are not patented in the same way that conventional pharmaceuticals are. This patenting process forms the basis of our current system for reviewing and approving pharmaceuticals, most notably because of the exorbitant expense associated with the process. Much of that expense is due to the (hopefully) well-designed, double-blind randomized controlled trials that lie at the heart of the drug approval process. The incentive for pharmaceutical companies to undergo this expensive and arduous process is the promise that they retain market exclusivity for their product for a number of years after approval. NHPs typically cannot be guaranteed the same promises of market exclusivity because the NHP industry consistently records annual sales topping a billion dollars in Canada. Furthermore, NHPs are not subject to the same regulatory scrutiny as pharmaceuticals, which allows for their rapid approval and widespread distribution.

The question still remains: how can we bridge the gap between perceptions and reality? Addressing this question will require a concerted effort from all stakeholders—patients, practitioners, and policymakers alike. Until then, we must remain vigilant in ensuring that the decisions we make regarding our health are evidence-based and that we are not swayed by the allure of simplicity and naturalness.
The question is, then, why — well into the 21st century — do we still have such a gap between perceptions of NHPs and reality? Though there is no easy solution to this problem, there are clues as to why it exists.

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references

Bringing Mindfulness into Medical Practice: UBC’s New Family Medicine Residency Program Delivers Mindfulness–Based Stress Reduction Curriculum

Devon Christie\textsuperscript{a}, MD CCFP GPPA

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\textsuperscript{a}Corresponding author: devon.christie@gmail.com

A 2013 review identified 14 medical schools that offer mindfulness programs, including McGill, Brown, Georgetown, Duke, and Harvard. Only two of those institutions incorporated mindfulness as a mandatory component of their undergraduate medical curricula: University of Rochester and Monash Medical School (Australia). The Kootenay Boundary program will likely be the first postgraduate family medicine program to incorporate training in mindfulness into its core curriculum, in partial fulfillment of the curriculum’s mandate for innovation. A recent publication shows that interest in mindfulness training among medical students is higher in those who are in clinical (72%) vs. preclinical (53%) stages of their training, which supports the integration of mindfulness into a postgraduate core curriculum.

What is mindfulness?

Mindfulness refers to a capacity of mind, whereby one attends to his or her immediate experience arising both from within (e.g. mental states, thoughts, feelings, somatic sensations) and from our environment (e.g. auditory, visual, relationships, home, and work conditions) through vigilant observation without judgment.

Why teach mindfulness to physicians? A balm for burnout

There is rising awareness about increasing rates of burnout among physicians, including estimates of up to 50% among residents, regardless of year of training. A 2015 US survey revealed 50% of family physicians are burnt out, a number that increased from 43% in 2013. The estimated costs of burnout among Canadian physicians is $213.1 million, with family physicians accounting for 58.8% of the costs. While burnout is not a recognized disorder in The Diagnostic and Statistical Manual of Mental Disorders, the World Health Organization International Classification of Diseases (ICD–10) defines burnout as “a state of vital exhaustion.” Burnout has three measurable dimensions: emotional exhaustion from overwhelming work demands, depersonalization (impersonal response toward patients or coworkers), and perceived lack of personal accomplishment.

Suicide is the only cause of death that is higher in physicians than the general population, and while rates are higher in both genders compared to all other professions, the rate in female physicians is an incredible 250–400% higher than the general population. Mindfulness is one of the few self-care practices with evidence of benefit for physician wellness. Encouraging studies show that mindfulness and meditation may play a protective role in the prevention of burnout.
and management of burnout. Students who participate in mindfulness programs develop reductions in psychological distress and burnout, and increased capacity for empathy.

One week of compassion meditation training was found to counterbalance empathy fatigue and was accompanied by corresponding changes in the regions of the brain associated with compassion, positive emotions, and affiliation, thus supporting this as a possible coping strategy when confronted with distress of others.

Improved safety in patient care

Studies also show that physician well-being affects patient care. Physicians have a professional obligation to maintain good health and practice good medicine, including making correct diagnoses and appropriate therapeutic decisions. Research shows meditators have improved perception, increased reaction-time consistency, decreased reactivity to stressful stimuli, faster return to baseline activity after stress arousal, decreased activity in anxiety-related brain regions (amygdala, insular cortex), better control in buffering physiological responses to stressors (inflammatory and stress hormones), and even shrinkage of the amygdala over longer periods of practice. The Canadian Medical Protective Association Good Practices Guide recommends physicians “improve self-awareness and mindfulness” — including recognizing fatigue, being alert to emotions, and recognizing that stress may interfere with reasoning — in order to increase situational awareness, one of the human factors that supports safe care and reduces medico-legal risk.

Self-awareness and relationship-centred care

The College of Family Practitioners of Canada (CFPC) Principles of Family Medicine states, “family physicians have an understanding and appreciation of the human condition, especially the nature of suffering and patients’ response to sickness. They are aware of their strengths and limitations and recognize when their own personal issues interfere with effective care.” Self-awareness is the key to truly understanding the human condition and the nature of suffering, and it can be cultivated through mindfulness. Furthermore, mindful practitioners can attend to their own physical, mental, and emotional processes during patient encounters, enabling them to internally self-regulate while listening attentively and acting with “compassion, technical competence, presence, and insight.” This ultimately fosters a cultural shift from patient-centred care, where physicians tend to focus solely on the needs of the patient, to relationship-centred care. This reorientation toward mutuality highlights not only what we give but also what we receive in our practice, and increases both patient and physician satisfaction, and resilience.

Medical training asks students who are often perfectionistic at baseline to acquire an overwhelming amount of knowledge in an environment of cross-examinations and occasional real abuse, while at the same time being exposed to highly emotionally charged and sometimes horrific situations in a culture void of routine psychological and emotional integration opportunities. This commonly leads to patterns of emotional distancing and repression, to sacrificing one’s own wellness, and eventually, to burnout. If not addressed prior to entering one’s career, these patterns can only provide a disservice to doctor and patient alike. It is imperative that medical curricula evolve to formally incorporate elements such as mindfulness practice that can serve to redress these patterns and plant the seed for lifelong attitudes and behaviors that foster physician self-awareness and well-being. This year, in line with leading medical institutions worldwide, UBC will be taking this step in Family Medicine training.

disclosures

Dr. Christie is a member of the clinical faculty at UBC, providing instruction to the UBC Kootenay Boundary Rural Family Medicine residency program. She has been involved in curriculum planning for the residency program as outlined in the article. She is also involved in planning a mindfulness and resilience program for healthcare providers at the Kain Hospice Centre, where she works as a faculty member. She teaches mindfulness based stress reduction (as an MSP-funded group medical visit, where medically indicated) to patients. Dr. Christie also receives no compensation from any private parties.

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Self-awareness is the key to truly understanding the human condition and the nature of suffering, and it can be cultivated through mindfulness.
What Is Good Medicine?

Hal Gunn*, MD
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*RCorresponding author: hgunn@inspirehealth.ca
*Co-Founder and CEO of InspireHealth, Vancouver, BC

After practicing as a family doctor for 14 years, first in Tumbler Ridge and then in Vancouver, I came to recognize what many of my colleagues and, more recently, clinical research have discovered; an empowered, engaged patient who is active in supporting their own health optimizes outcomes and reduces treatment costs.1,3 At that time — 18 years ago — Dr. Roger Rogers and I recognized the importance of engaging people living with chronic disease in their own health, and we founded InspireHealth, based on the following basic principles of good medicine:

1. Patient empowerment, including supporting our patients in learning about their disease and about the ways that they can support their own health.
2. Healthful nutrition, exercise, love and connection, and stress reduction, including the options of meditation and yoga.
3. Patient choice. An essential foundation of patient empowerment and engagement is the full support of informed choice,4-6 even if (or from a practical perspective, especially if) the informed choice is different from the one we would make ourselves or recommend. Honouring and supporting patient choice and informed consent are fundamental and essential aspects of good medicine, professionalism, and patient empowerment.
4. Recognition of the value of standard medical treatments.
5. Modeling health and happiness. We communicate more through who we are than through our words. Physician heal thyself.
6. Above all, do no harm.7

When InspireHealth was founded in 1997, like today, many physicians tried as best as they could to bring these simple principles into their daily practice of medicine to support their patients’ health. However, at the time, these principles were sufficiently unconventional that some of our more conservative colleagues referred to InspireHealth (known at that time as Centre for Integrative Healing) as complementary or alternative medicine, a characterization that I’ve always considered odd. The principles above are, after all, essential aspects of good medicine, and they have guided Sir William Osler and many other physicians interested in the healing arts throughout the history of medicine. We do our profession an injustice by characterizing medicine that values patient empowerment, engagement, health, and choice as “alternative,” “complementary,” or “integrative.” These are, after all, basic principles of good medicine and are as important to the practice of medicine as technical skill and knowledge.

Most people know that a healthful diet and exercise are good for them and that smoking isn’t. The barriers to health engagement are typically more meaningful than simply a lack of information. These barriers are often unconscious, limiting patterns and internal barriers to self–love and acceptance. As human beings and physicians, we can’t take responsibility for someone else’s healing. If, instead, we take responsibility for our own healing, we inspire others to do the same. The more we heal, the greater our capacity to facilitate healing in others becomes, not because we are taking responsibility for their healing, but because we are taking responsibility for our own. If we have faced and released our fears (e.g., our fear of death) and our limiting patterns, we can be in a compassionate and empathetic relationship with our patients without our own fears and patterns being triggered by their suffering. As we embrace the fullness of our humanity and of our own healing and learn to more fully love ourselves, our capacity for compassion increases, and we inspire others to connect with their own healing. At InspireHealth, we witness inspiration and joy in our patients as they release their limiting patterns and connect to their capacity to more fully love and care for themselves, which ripples out, inspiring their family and friends.

Patient empowerment is essential for health engagement. Full support of informed patient choice is an essential component of empowerment. When we empower patients, it means that we fully support their right to choose, even if their informed choice is different from the choice we would make for ourselves. If we wish to engage patients in their health, we must honour and support their right to choose.

Most physicians did not enter into medicine solely to master technical skills...
or knowledge. While these are important aspects of medical school education, they are only one aspect of what makes us a good doctor. Most physicians enter medicine because they had — and have — an interest in the human condition and healing and an interest in learning to empower, engage, and optimize healing, while minimizing unnecessary suffering. Most physicians have a longing to connect with their patients on a more meaningful level than simply prescribing treatments.

At InspireHealth, we have sought to make the six principles above explicitly important in our work and to recognize and honour the important role that they play in empowering and engaging our patients in health and healing — in other words, to practice good medicine. Not alternative or complementary medicine. Good medicine.

A holistic approach to care, one that honours and cares for the whole person, including patient empowerment and choice, has a lineage in medicine. It is important that we claim this lineage because it is the basis of good medicine. It is about understanding how to be more fully in compassionate empathy in the midst of human suffering. It is about connecting to our own life force and happiness and about celebrating life, death, and birth. This is what it means to be human. This is what it means to be a good physician.

To relegate these essential aspects of healing and health to “Eastern” or “complementary” medicine is to admit the inadequacies of our own profession and of ourselves as physicians. It takes courage to embrace human suffering with empathy. It takes courage and humility to be a compassionate guide rather than an “expert.” It takes courage, humility, and wisdom to recognize that we know far less about the human condition, healing, and the mystery of life and death than our schooling readily admits. It takes courage to embrace this mystery, to recognize the limitations of our own training, and to recognize that other healing traditions might have something positive to offer our patients, even if it is not part of our own training or easily researched. Good medicine includes humility and an openness to new ideas and to other ways of thinking.

If we are afraid of our own inadequacies, we label what frightens us as “other.” Good medicine includes a humble embrace of the mystery of the human condition and of the six principles above. Our connection to these principles, as human beings, is as strong in us as it was in Sir William Osler. In embracing these principles, we are rewarded with the remarkably fulfilling practice of supporting our patients and ourselves in a deeper understanding of health and healing and what it means to be human. This is not complementary or integrative medicine; this is good medicine.

As human beings and physicians, we can’t take responsibility for someone else’s healing. If, instead, we take responsibility for our own healing, we inspire others to do the same. The more we heal, the greater our capacity to facilitate healing in others becomes, not because we are taking responsibility for their healing, but because we are taking responsibility for our own.

We do our profession an injustice by characterizing medicine that values patient empowerment, engagement, health, and choice as “alternative,” “complementary,” or “integrative.” These are, after all, basic principles of good medicine and are as important to the practice of medicine as technical skill and knowledge.

disclosures

Dr. Hal Gunn is the co-founder CEO of InspireHealth, a not-for-profit society that provides supportive care for people living with cancer.

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Integrative healthcare is defined as an avenue of medicine and health that "reaffirms the importance of the relationship between practitioner and patient, focuses on the whole person, is informed by evidence, and makes use of all appropriate therapeutic and lifestyle approaches, healthcare, and disciplines to achieve optimal health and healing." For the purposes of this article, naturopathic doctors are the alternative approach. The term ‘integrative care’ is, in the current healthcare climate, simply an ideal. It is an idealized system for streamlining patient care — where the strengths of each profession, both naturopathic and conventional, are realized, and patients are directed to the appropriate practitioner for care. Vancouver is especially flooded with clinics operating under this apparently integrative model. While these operations are headed in a positive direction, they still have a ways to go before fully operating under the umbrella of true integrative care. My ten plus years of practice as a naturopathic physician in a healthcare system that has undergone extensive changes has created a unique perspective on the integrative healthcare model.

This is the healthcare world within which I would like to operate. However, I am not blind to the reality that we have a long way to go before that ideal system can be realized. As a naturopathic physician, I have had the benefit of seeing the ‘other’ side of healthcare — the side that the allopathic medical doctor (MD) is not always privileged to witness and participate in. For example, I often see patients who have exhausted conventional resources and still show no improvement in their health. I see patients who explore alternatives because they are not getting better. Unfortunately, by the time I have the opportunity to work with these types of patients, they are frustrated and have spent both time and money without receiving any apparent benefits. The beauty of an integrative care model is the potential to streamline patients to the appropriate medical model. In many cases, a synergy can exist when both the conventional and naturopathic approaches are applied to a patient’s case. For this to happen, however, the two professions have to understand the strengths and weaknesses of both approaches. It is vital that we as physicians recognize the following: when one approach is better suited over the other, understand how the two professions can work in tandem, and most importantly trust the treatment plan of the other doctor. Essentially, we must keep an open mind for true integrative care to become a reality.

Our two professions have come a long way in working alongside each other, and naturopathic doctors have gained ground and respect as medical practitioners, with the scope of practice continuing to evolve. There are four primary objectives for scope of practice for British Columbia naturopathic doctors. With these goals in mind, the British Columbia Naturopathic Association (BCNA) works tirelessly to expand the scope of naturopathic practice. These goals include prescribing rights, laboratory and diagnostic access, specialist referral, and hospital privileges. In 2009, the first of these pillars was realized, with naturopathic doctors gaining prescribing privileges. Naturopathic doctors have the ability to order laboratory testing; however, patients are required to pay for each test. In addition to prescribing privileges, naturopathic doctors incorporate various modalities into patient treatment plans. These may include acupuncture, manual therapies (osseous manipulation, electrotherapy), injection therapies (neral therapy, prolotherapy), botanical medicine, use of neutraceuticals, and medical nutrition. Naturopathic doctors receive extensive training in these modalities and are able to make clinical judgments as to when one is indicated over another. A vital aspect

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of naturopathic education is a thorough understanding of how these many modalities interact with each other when they are best implemented.

In British Columbia, naturopathic medicine was added to the Health Professions Act in 1996. Since then, we have become a self-regulating profession, providing support to our mutual patients while ensuring public safety by setting stringent guidelines for our education and training. Our scope of practice is still growing and we continue to be self-regulated under the College of Naturopathic Physicians of British Columbia (CNPBC). The greater the scope of naturopathic practice, the more equipped naturopathic physicians are to utilize our extensive training to manage cases as primary care practitioners (PCP). Increasing the scope of practice of naturopathic doctors further facilitates the creation of an integrative care system. The B.C. government has repeatedly highlighted the need for additional PCPs. Incentives for newly graduated doctors to work in rural communities exist; however, many city-dwellers also lack a PCP. Both the Premier and the current Minister of Health have voiced the shortfalls of the current healthcare system and continue to focus on the “GP for Me” program, which seeks to ensure B.C. residents have a PCP. Naturopathic doctors have the potential to be part of the solution. Naturopathic doctors are currently licensed as PCPs who specialize in natural medicine, but our current scope of practice is limiting. By practicing to our full potential and training, naturopathic physicians can, under an integrative model, alleviate the strain on the current system.

In my 12 years of practice in downtown Vancouver, I have witnessed tremendous growth between the two professions. In the past, I have had to fight for copies of patient test results, including blood work or ultrasound results, but I have since learned to respect the authority of the general practitioner (GP) and educate the patient on their options. Currently, any patient who comes to see me goes through an initial intake, which can involve a full health history and physical exam. Depending on the chief concern, this can take anywhere from 30 to 90 minutes. Patients frequently seek out a naturopathic doctor because he or she wants assurance they are living a healthy life; this is where the naturopathic doctor excels. The strength of the naturopathic approach is that we, as naturopathic doctors, take inventory of many facets of a patient’s lifestyle. These include social history, family history, dietary habits, environmental stressors, emotional state, current medical treatments, and a review of systems. We do this because we believe it is necessary to treat the whole person, not just the individual symptom or system. This, in turn, provides us with valuable information to create targeted treatment protocols and work with the patient to treat the root cause of their ailment. In other cases, where the patient simply wants lifestyle support, gathering this degree of information facilitates disease prevention later on.

In the current system, where the ideal integrative model does not yet fully exist, there are several hurdles for patients who seek alternative care. If their GP is not open to complementary care from other health professionals, it potentially isolates that patient. I have experienced patients requesting that I do not communicate with or send lab results to their family doctor for fear of ruining that relationship. This is not a positive experience for the patient and something we should seek to avoid. Why can’t the patient feel free to explore other options? Why must their healthcare be managed by one avenue of medicine or, in some cases, an individual? I believe they should feel free to seek out additional care and utilize the strengths of other healthcare practitioners. The same goes for my profession: there are times when I have witnessed naturopathic doctors taking patients off of medications and instead recommending supplements in their place without regard for our MD counterpart’s treatment plan. There needs to be a better way for our two professions to interact. Improving the relationship between our two professions will facilitate better patient experiences, and ideally, more positive patient outcomes.

The 2002 Romanow Report demonstrates the need and desire of Canadians for a more comprehensive healthcare system. He outlines a collaborative system where individuals receive care from a multitude of healthcare services delivered in a seamless fashion, as opposed to receiving isolated care from many healthcare practitioners. In his report, Romanow discusses the need for an integrative approach that works on prevention, promotion, primary care, community health, and mental health. This extensive report was a huge step for the naturopathic profession; in discussing the shortfalls of the current healthcare system, it created a niche for naturopathic doctors to exist in an integrative care model. It highlighted the importance of healthcare practitioners working together under an integrative model to streamline patient care.

The current healthcare climate in

In my 12 years of practice in downtown Vancouver, I have witnessed tremendous growth between the two professions. In the past, I have had to fight for copies of patient test results, including blood work or ultrasound results, but I have since learned to respect the authority of the general practitioner (GP) and educate the patient on their options.
British Columbia requires a revamp. Both the Romanow report and the B.C. Ministry of Health outline a shift in direction for our current system. Romanow discusses the need to re-evaluate key determinants of health. The B.C. Ministry of Health suggests several health goals for British Columbians, which can be addressed by moving towards an integrative health model. If we as healthcare professionals hope to empower a patient to live a healthier life, reduce the burden to healthcare, and improve patient experience, naturopathic and allopathic physicians need to start working together.

We do have a few areas where this integration has been easier; for example, in the oncology world, medical and naturopathic doctors work alongside each other at the Cancer Treatment Centers of America (CTCA), and there are a number of local naturopathic doctors who work with Inspire Health. Chronic care is another area where naturopathic doctors excel, and in several integrative clinics in the Vancouver area, naturopathic and medical doctors co-manage cases. Naturopathic doctors have the luxury of longer patient visits, which lends well to these types of cases.

While a plethora of positives for integrative care exist, implementing this model is not without potential consequences. First and foremost, a clear definition is needed. This definition must clearly define the types of practitioners involved and their specific roles. It may be necessary to differentiate the naturopathic doctor from other alternative healthcare practitioners who lack the extensive science–based clinical education. In addition, a major barrier is the potential for mismanagement. Without a clear definition of physician roles there is the potential for patients to fall through the cracks. For example, monitoring a patient on a specific drug begs the question of who is the initial prescriber and which physician is ultimately responsible for following that patient’s progress. For this to work, naturopathic and medical doctors must recognize and respect each other’s judgment. On the flip side, the integrative model, in a world of specialists, has the potential to ensure a sole physician monitors a patient’s diverse care. In the current system, a GP has limited time with each patient to oversee cases managed by multiple physicians. In addition to the potential mismanagement of an integrative system, is the significant barrier of a naturopathic doctor’s fee for service. Naturopathic doctors are able to spend significantly more time per patient visit because they are paid privately. While every naturopathic doctor employs a different fee schedule, ultimately our services are more accessible to individuals who can afford to pay. If we hope to provide equal access to B.C. residents, this aspect would need to be addressed.

While our two professions have made great strides in working together, there is still a ways to go. As each profession continues to recognize the strengths of the other and how these strengths can best benefit a patient’s case, patients will be more effectively and efficiently cared for. A true integrative model is the ideal, and we are a ways from making it a reality. However, with an open mind and a willingness to take a few small steps in the short term, I believe it can be realized in the future.

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Complementary and alternative medicine (CAM) typically includes therapies or treatments that are not considered mainstream in North America. More specifically, CAM is defined as modalities that are not extensively taught in North American medical schools and are not widely used in North American healthcare institutions (i.e., hospitals or medical clinics). CAM is often used instead of, or in conjunction with, conventional treatment modalities (e.g., surgery, pharmaceuticals, etc.). According to the Public Health Agency of Canada, it is estimated that more than 70% of Canadians regularly use at least one form of CAM. While as many as 90% of seniors (i.e., individuals aged 65 years or older) live with at least one chronic disease, they tend to be less well represented among users of CAM, particularly when compared to younger individuals. While many believe that CAM treatments are a more natural approach, evidence suggests that CAM use is influenced by personal attitudes, culture, and a holistic concept of health. Deterrents for CAM use include limited scientific evidence, cost, and the attitudes of others (e.g., physicians, the public).

Investigating Complementary and Alternative Medicine Use Among Seniors

Katrina M. Ward, BSc a, Dr. Renee S. MacPhee, PhD b
Citation info: UBCMJ. 2015: 7.1 (21-24)
a MD Candidate 2018, Faculty of Medicine, University of British Columbia, Vancouver, BC
b Assistant Professor, Faculty of Kinesiology and Physical Education, Wilfrid Laurier University, Waterloo, ON

abstract

Objectives: Complementary and alternative medicine (CAM) is used regularly by 70% of Canadians, but when compared to younger users of CAM, seniors tend to use it less frequently. Using a phenomenological approach, this study sought to explore the attitudes and beliefs of seniors towards the use of CAM.

Methods: This qualitative study used either in-depth personal interviews or focus group interviews as the primary means of data collection. Participants in the study were individuals who had either used CAM in the past, or who were currently using CAM.

Results: Participants described that they would use conventional treatment for pathological disease, but would prefer to use CAM in certain circumstances as it was perceived to be a more natural approach. Exercise was also described as a form of CAM. Deterrents for CAM use include limited scientific evidence, cost, and the attitudes of others (e.g., physicians, the public).

Conclusion: Participants felt that they had positive experiences using CAM as an adjunct to conventional medicine, and felt that they had no personal barriers to accessing CAM. A major deterrent of CAM use was the limited scientific evidence, while minor factors included cost and the attitudes of others. Open discussion about CAM use should take place between physician and patients.

introduction

Complementary and alternative medicine (CAM) typically includes therapies or treatments that are not considered mainstream in North America. More specifically, CAM is defined as modalities that are not extensively taught in North American medical schools and are not widely used in North American healthcare institutions (i.e., hospitals or medical clinics). CAM is often used instead of, or in conjunction with, conventional treatment modalities (e.g., surgery, pharmaceuticals, etc.). According to the Public Health Agency of Canada, it is estimated that more than 70% of Canadians regularly use at least one form of CAM. CAM can include acupuncture, chiropractic care, massage therapy, yoga, diet-based therapies, naturopathy, homeopathy, osteopathy, and herbal remedies.

The results of previous research suggest that CAM is used more often by individuals who have chronic health problems because it reportedly gives them a sense of control over their health, and may improve quality of life. In addition, the literature suggests that some of the factors that influence the use of CAM include dissatisfaction with traditional treatments, personal attitudes, culture, and a holistic concept of health. While as many as 90% of seniors (i.e., individuals aged 65 years or older) live with at least one chronic disease, they tend to be less well represented among users of CAM, particularly when compared to younger individuals. To date, there is limited research on the use of CAM by seniors, which may be in part due to the potential for confounding effects with conventional treatments, and possible loss of follow-up due to death or illness.

This study was designed to explore the attitudes and experiences of seniors with their use of CAM. This research also aimed to identify barriers that affect the use of CAM in seniors.

materials & methods

Data were collected via in-depth personal or focus group interviews. In order to be eligible to participate in the study, participants had to be 65 years of age or older and either previous or current users of CAM. Participants were recruited using one of two approaches: 1) purposeful convenience sampling, wherein prospective participants were known to the researcher; or 2) self-selection wherein posters and recruitment speeches at senior’s centres in Kitchener–Waterloo were used to inform prospective participants, who contacted the researcher directly via email or telephone. At the end of three weeks, a total of 16 participants had enrolled in the study; at this time, all recruitment posters were removed.

Interviews took place at a location that was convenient for both the participants and the researcher. Prior to the start of each interview, the researcher ensured that each participant met the inclusion criteria, and either a verbal or written informed consent was obtained. A standardized set of seven open-ended questions was used to guide each of the interviews. Key questions included:

• Do you have any experiences, past or present, with complementary and alternative medicine?
• Do you have any reasons why you chose/choose to use complementary and alternative medicine?
• What are the barriers that affect your access or decision to use complementary and alternative medicine?

All interviews were audiotaped. During the interviews, the researcher took field notes that identified general observations and key phrases. Each interview was transcribed verbatim, and with identifying information removed to ensure confidentiality, each participant was sent his/her transcript and asked to review it in order to ensure the accuracy of the information.

Approval for this study was obtained from the Research Ethics Board at Wilfrid Laurier University. This study was done as an undergraduate thesis project. The participants did not receive financial compensation.

analyses

Using a phenomenological approach, the data analysis sought to examine the lived experiences of participants. Because the study was evaluating the subjective experiences of more than one individual to find meaning in their lived experience, the phenomenological approach was the most suitable approach to analyze this qualitative study. The transcript was initially examined for broad, common, recurring themes. The broad themes were further broken down into sub-categories following subsequent detailed readings. Concepts that were identified by eight or more of the participants were described as a major theme. Furthermore, concepts that were articulated by three or more of the participants were identified as sub-themes. The transcripts were reviewed to the point where no further themes could be identified.

results

16 participants who met the inclusion criteria were included in the study. Three participants were recruited using the convenience sampling technique; the remainder of the participants (n=13) self-selected to participate in the study. The participants consisted of three men and 13 women. All participants were aged 65 years or older: 11 participants were between 65 and 74 years of age; two participants were between 75 and 84 years of age; and three participants were 85 years of age or older. The mean age of participants was 74.5 years. 12 participants resided in the Kitchener–Waterloo area, while the remaining four participants lived outside the province of Ontario. The characteristics of the participants are provided in Figure 1. Seven in-depth personal interviews were conducted in this study. Four of the interviews were conducted via the telephone due to geographical location of the participants relative to the researcher; the remaining three interviews were conducted in person.

Three focus group interviews were conducted. In each focus group, the number of participants ranged from two to four in each interview.

Participants had experiences with a wide range of alternative therapies, including yoga (n=12), massage therapy (n=9), tai chi (n=8), chiropractic care (n=7), acupuncture (n=6), osteopathy (n=4), and naturopathy (n=4). Other forms of CAM that were less frequently utilized included herbal remedies and natural health products (n=3), vitamins and probiotics (n=3), spiritual healing (n=2), homeopathy (n=1), aromatherapy (n=1), biofeedback (n=1), reflexology (n=1), and energy healing (n=1). All of the participants were using CAM in addition to traditional medical treatments.

The length of interviews ranged from 20 minutes to 90 minutes. Personal interviews ranged from 20 minutes to 36 minutes, taking on average 22 minutes to complete. Focus groups ranged from 25 to 90 minutes, taking on average 75 minutes to complete.

themes

In order to maintain the privacy of the participants, abbreviations to denote participation in a focus group or personal interview were used in place of their personal identifiers (i.e., first and last

While as many as 90% of seniors (i.e., individuals aged 65 years or older) live with at least one chronic disease they tend to be less well represented among users of CAM, particularly when compared to younger individuals.
names). Each of the three focus groups (FG) was assigned a number (e.g. FG1; FG2; FG3); personal interviews (PI) were numbered according to the participant that was interviewed. Each participant was assigned a number and identifiers were removed. A slash was used to separate the type of interview that was conducted and the number assigned to the participant. For example, FG2/8 described a quote by Participant 8 in focus group 2. A statement made by Participant 11 in a personal interview is denoted PI/11.

**Major Theme 1: Participants tried to use CAM as an alternative to only prescription medications**

The first major theme identified, which was identified by the vast majority of participants, was that CAM was used as an alternative to conventional medicine. Participants felt that they were responsible for their own health, and that CAM gave them more control over their health outcomes.

- “I’d much rather try a natural thing than have a medication. I don’t like taking medications; unfortunately at my age you have to.” (FG2/8)
- “…I tend to be a bit skeptical about medication and fixing symptoms and this is happening to your body for a reason, you know, what is it?” (FG1/5)

**Sub-theme 1: Physical activity was considered to be a form of CAM by participants**

A sub-theme that emerged was that many of the participants considered exercise to be a form of CAM. These participants included physical activity as a way of promoting good health, preventing disease, and speeding up recovery of musculoskeletal injuries:

- “I consider any sport, any physical activity, to be something that is health, uh, promoting, and health maintaining.” (FG3/14)
- “For example, I’ve been running for 42 years. I consider that medicine.” (FG3/16)
- “That’s a theme that I am seeing more and more in medicine, and that is that our bodies were made to move.” (FG3/16)
- “I maintain my heart condition is better because I exercise.” (PI/11)

**Major Theme 2: Seniors’ decision to use CAM is influenced by several factors**

All but one of the participants expressed that they did not feel that they had any personal barriers to accessing CAM. Factors that the participants felt influenced the use of CAM among seniors are expressed as sub-themes below:

**Sub-theme 1: The limited regulation and scientific evidence related to CAM is a major factor that influences the use of CAM**

Participants felt that one of the factors that influenced the use of CAM among seniors was the lack of regulation and scientific evidence. This theme was very prevalent in the third focus group interview, where all four of its participants felt that this deterred them from using certain alternative therapies, such as reflexology, naturopathy, or homeopathy:

- “Many of those haven’t been—they aren’t regulated so I wouldn’t really go for them.” (PI/1)
- “I don’t—well, I just don’t think that their remedies are as effective as a medical doctor…I don’t think they’re scientifically proven, and I don’t think they’re as effective. I think there’s a lot of placebo effect.” (FG3/16)

The importance of scientific evidence was made evident by participants who acknowledged that they would still seek conventional treatment for a pathological illness rather than using alternative medicine.

- “As far as osteopenia is concerned, I know certainly the drugs available are very beneficial, so I would use them. Were I to have an infection, I would feel that would need to be treated medically… I do believe that there are some true medical issues that need to be dealt with, you have to deal with them.” (PI/12)

**Sub-theme 2: Cost as a deterrent for ongoing CAM use**

Participants described cost as a factor that prevented people from continuing their use of CAM beyond what they felt was directly necessary for their healing process. Participants indicated that cost would not stop them from going for an initial visit, but if treatment were to be ongoing they might feel that CAM was too costly.

**Sub-theme 3: External factors affect the use of CAM**

This sub-theme was a reflection of the belief that the attitudes of the public, physicians, and the patient–physician relationship were all factors in seniors’ decisions to use CAM. Some participants felt that there was public judgment when deciding to use CAM. On the other hand, several participants expressed that there tends to be more acknowledgement of CAM now than there used to be. Participants who felt that they had a stronger patient–physician relationship were more comfortable bringing up their use of CAM with their physician.

**Discussion**

This study explored the use of CAM by seniors through the use of in–depth personal interviews and focus group interviews. The study highlighted that because CAM has limited scientific evidence, seniors tend to seek conventional treatment for a pathological illness rather than using CAM...
alternative medicine. With respect to musculoskeletal injuries or maintaining general well-being as they aged, some of the participants preferred to use CAM over a conventional therapy. This is consistent with the research literature that suggests that CAM is most often used for back and neck pain, followed by stress and anxiety. Older adults could benefit from an open discussion with their physicians about using CAM as an adjunct to conventional therapy when considering treatment options.

An unexpected and very significant theme that emerged pertained to the belief that physical activity is very relevant in personal health promotion and maintenance. This finding was strongly expressed by 15 of the 16 participants in the study. Physical activity is supported in the literature as being a factor in the prevention and management of numerous chronic diseases, including diabetes, obesity, hypertension, and heart disease. Furthermore, when looking at the traditional definition of CAM, self-directed daily exercise was not often included as a form of alternative therapy. A study done by McFadden et al. suggests that individuals who believe in the principles of CAM report doing more aerobic exercise than those who are not strong believers in CAM ($p=0.041$), and that CAM users are more likely to engage in a healthy lifestyle than nonusers. One participant expressed this theme by saying, “[for] example, I’ve been running for 42 years. I consider that medicine” (FG3/16). Self-directed physical activity, such as performing yoga at home, running, or walking, was part of the daily routine of more than half of the participants. These activities may also be less costly and more accessible than some of the other alternative therapies such as acupuncture. This finding may suggest that physical activity should be acknowledged as part of the definition of CAM and supports that physical activity should be a central part of the lives of seniors.

There were several limitations to this study. The first is that the study had a small sample size ($n=16$). This was due largely to the time constraints associated with an undergraduate thesis. Despite this, interviews were conducted to the point of saturation. Another limitation is that the sample itself may not be representative of the senior population at large. Reasons for this may include: the majority of the seniors self-selected for the study (a possible form of recruitment bias because these individuals may have been in a better financial position to engage in CAM services); participants were predominantly female (female $n=13$; male $n=3$); participants had positive experiences with CAM such that they wanted to share and promote CAM; all the participants were residents of a suburban or urban area rather than a remote or rural community (the literature search suggests higher rates of CAM use in rural communities as compared to urban communities); and only seniors who had used CAM were recruited due to time constraints.

**Conclusion**

In summary, participants felt that by using CAM they were actively taking control of their health needs. Overall, seniors did not feel that they had any barriers in their access to CAM, though in general, factors such as cost, attitudes, and regulation would affect their decision to use more alternative therapies. It was encouraging to hear that physical activity was viewed as such a positive factor in maintaining health and well-being of seniors, and some participants considered physical activity to be a form of CAM.

Future research could compare senior participants who do not use CAM with those who do in order to determine whether there are any differences in attitudes or beliefs, or perceptions of barriers. In addition, research could also examine how the use of CAM differs in rural and urban settings or among seniors of different ethnicities.

**Disclosures**

The authors do not have any conflicts of interest that would affect this research.

**References**

A Doctor by Any Other Name

Csilla Egri B.Sc, M.Sc a; Tasneem Pirani-Sheriff, M.Sc b

Citation info: UBCMJ. 2015; 7.1 (25-27)
a Corresponding author: c.egri@alumni.ubc.ca
b MD Candidate 2017, Faculty of Medicine, University of British Columbia, Vancouver, BC
b ND Candidate 2016, Boucher Institute of Naturopathic Medicine, New Westminster, BC

abstract

This interview–style commentary piece addresses some key concerns medical professionals might have about the care provided by complementary health care practitioners, specifically naturopathic doctors (NDs). As relative content experts in their respective fields, questions are asked by a medical student and answers provided by a student of naturopathic medicine. Readers will gain a first hand understanding of the ND route of education, scope of practice, as well as answers to some common myths around the practice of naturopathy.

introduction

As a student tasked with learning all of the anatomy, physiology, and pathology of the human body, I sometimes feel I’m barely able to tell up from down. But I do know that I want to do good. I want to make people, patients, feel well. And from the biopsychosocial model of health that is by now all–too–familiar, I am aware that wellness is more than just being free from disease.

As a medical student, I certainly identify with the above statement. But so does my colleague, a third year student at the Boucher Institute of Naturopathic Medicine. In fact, the above statement is an accurate description of both our experiences in our respective medical educations, as well as our motivations for choosing them. We both attended graduate school at Simon Fraser University, both working late hours by the benchside, cursing our cell cultures, and writing and rewriting our theses. It was after we finally secured our title as “Master’s of Science” that our paths diverged. The pursuit of a four–year degree that differs by one letter in the alphabet will have a profound impact on how we are viewed by society, the respect we are given, and the stereotypes we give one another.

To better grasp this one letter divide and address the misinformation, I simply decided to ask them some questions and share with you the answers.

what defines naturopathic medicine?

Naturopathic medicine is a system of healthcare that integrates modern scientific knowledge with traditional medicine. Six basic principles govern our treatment:
1. First, do no harm
2. The healing power of nature
3. Prevention
4. Identify and treat the root cause
5. Treat the whole person
6. Doctor as teacher

Our philosophy is to first remove the barriers to health and then stimulate and support the body’s own innate healing power. We emphasize prevention, but in the case of disease, we stress the importance of identifying the underlying cause of dysfunction. NDs in British Columbia are regulated by the College of Naturopathic Physicians of British Columbia (CNPBC) and governed by legislation and bylaws within the Health Professions Act.1,2

how does the level of training compare between MD and ND?

Naturopathic medicine is a system of healthcare that integrates modern scientific knowledge with traditional medicine... Our philosophy is to first remove the barriers to health and then stimulate and support the body’s own innate healing power.

The ND and MD programs are both very similar in structure and length (Figure 1). A successful ND student must complete:4
1. A Bachelor’s degree including specific premedical science courses
2. A four–year degree program at an accredited school of naturopathic medicine which includes training in:5 a) Biomedical sciences: anatomy, physiology, histology, microbiology, biochemistry, immunology, pharmacology, and pathology; b) Clinical disciplines: physical, clinical, differential and lab diagnosis, radiology, naturopathic assessment and orthopaedics,
emergency medicine, and minor surgery; c) Naturopathic modalities: clinical nutrition, botanical medicine, traditional Chinese medicine and acupuncture, naturopathic osseous manipulation, homeopathic medicine, hydrotherapy, and lifestyle counselling.

3. A passing grade on two comprehensive Naturopathic Physicians Licensing Examinations written after the second and fourth years of study.

Following graduation, NDs are required to obtain continuing medical education credits each year as outlined by the provincial regulatory boards. This combined knowledge, experience, and skill allows us to differentially diagnose and treat patients with a wide variety of health conditions.

As primary health care providers, NDs see and treat a wide spectrum of patients with varying conditions, similar to general practitioners. However, many NDs choose to focus their practice on more specific areas including, but not limited to, oncology, paediatrics, women’s health, and sports medicine.

NDs recognize their limitations and choose to refer patients to MDs for collaborative management.

When discussing the spectrum of care, NDs excel at optimizing lifestyle and health, preventing disease, and treating chronic conditions, whereas MDs excel in emergency and critical conditions. The area in between is ideally where NDs and MDs can work together to provide integrative, patient-centered medical care.

As primary health care providers, NDs see and treat a wide spectrum of patients with varying conditions, similar to general practitioners. However, many NDs choose to focus their practice on more specific areas including, but not limited to, oncology, paediatrics, women’s health, and sports medicine.

NDs are ND’s against conventional medicine?

No. Both naturopathic and conventional medicine have unique roles in patient care. Situations that require specialist-specific or emergent medical care go beyond our scope or level of expertise. In these cases, NDs recognize their limitations and choose to refer patients to MDs for collaborative management.

When discussing the spectrum of care, NDs excel at optimizing lifestyle and health, preventing disease, and treating chronic conditions, whereas MDs excel in emergency and critical conditions. The area in between is ideally where NDs and MDs can work together to provide integrative, patient-centered medical care.

is naturopathic medicine the same as homeopathy?

No. A naturopathic doctor is a licensed medical professional who provides comprehensive patient-centered care. Naturopathic medicine and homeopathy are not synonymous, and unlike NDs and MDs who are licensed physicians regulated by the government, homeopaths are not doctors and do not have a regulated profession.

are all NDs anti-vaccine?

No. NDs are not anti-vaccine, though as a profession made up of

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**Total Educational Hours**

<table>
<thead>
<tr>
<th></th>
<th>Academic Hrs</th>
<th>Clinic Hrs</th>
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</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>RMT</td>
<td>2116</td>
<td>635</td>
</tr>
</tbody>
</table>

Figure 1: Total educational hours: a comparison of various health professionals. Average total undergraduate (or equivalent) education hours of DC (Doctor of Chiropractic), DO (Doctor of Osteopathy), MD (Medical Doctor), ND (Naturopathic Doctor), PT (Physical Therapist), RMT (Registered Massage Therapist), LMT (Licensed Massage Therapist). Adapted from ProHealthSys.
individual practitioners with their own thoughts and beliefs, there are a number of perspectives on the topic. The British Columbia Naturopathic Association (BCNA) does provide a position statement with regard to communications around giving vaccinations. Prevention is one of our primary principles, and vaccinations, proper hygiene, and adequate nutrition fall within that category. Our responsibility as NDs is to educate on the benefits and risks of any treatment, allowing patients to make informed choices about their health, vaccinations included.10

are naturopathic practices rooted in evidence?

We rely on the integration of scientific advancements with traditional forms of medicine to better diagnose and treat our patients (for example, with laser stimulation of acupuncture points and herbal support for multi-drug resistance in cancer and chemotherapy).11,12,13 Conventional medical research continuously presents support for the use of naturopathic medical practices, such as highlighting the importance of polyunsaturated fatty acids and the intestinal biome in health and longevity.14,15

When discussing the spectrum of care, NDs excel at optimizing lifestyle and health, preventing disease, and treating chronic conditions, whereas MDs excel in emergency and critical conditions.

I’m grateful to my colleague for answering my questions and providing a better insight into the naturopathic profession. I know, however, that these few pages will not be enough to mend the historically poor relationship between MDs and NDs. As future physicians, some of our patients will seek alternative care, and it’s at this critical point we must not let our personal or cultural biases sabotage our efforts at optimal and continuous patient care. Our methods and approaches may differ; but we are colleagues in healing and wellness, and in this spirit I encourage you to keep the dialogue open.

disclosures

The author does not have any conflicts of interest and is not tied to naturopathic medicine.

editorial statement

Traditionally, students studying in Canadian medical schools receive limited exposure to the practice of naturopathy and other forms of complementary and alternative medicine (CAM). In this issue, the UBCMJ has sought to increase students’ awareness of CAM practices by presenting multiple opinions regarding their use. In this article, Csilla Egor, a third year medical student, interviews a naturopathic student and explores a number of common questions and concerns about this profession. The views expressed in response to these questions, as presented in this article, are solely those of the interviewee and do not necessarily reflect the ideas or values of the UBCMJ or the Faculty of Medicine. Please note that the UBC Faculty of Medicine follows the Provincial Health Services Authority (PHSA) guidelines on vaccinations.

references


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Dental Care in Canada: the Need for Incorporation into Publicly Funded Health Care

Elisabeth McClymont, BA (Health Science)\*\*
Citation info: UBCMJ. 2015: 7.1 (28-29)
* Corresponding author: elisabethmcclymont@gmail.com
* MSc Candidate 2017 in Reproductive and Developmental Science, University of British Columbia, Vancouver, BC

abstract

Dental care was recommended in the 1964 Royal Commission on Health Services that helped shape our current health care system but has yet to become a part of publicly funded health care. This has left almost one third of Canadians without dental insurance, leading to poor health outcomes and stark inequalities. Evidence indicates that dental care should be incorporated into Canada’s existing system as it is medically necessary, will decreased long term costs, and its inclusion will promote accessibility and comprehensiveness in our system. With the Health Accord expiring and an adequate number of dental professionals today, now is the time to incorporate dental coverage into the public health care system.

introduction

The former Minister of State for Public Health, Carolyn Bennett, made a salient point when she said that Canada has a “health care system where the mouth is not considered a part of the body.” 1 As outlined in the Canada Health Act, Canadians receive coverage for medically necessary physician and hospital services but not dental services. This means that we receive coverage for our lips, tongues, and throats but not our teeth and gums. 2 Canada ranks second last in public financing of dental care when compared to other Organization for Economic Co-operation and Development nations 3 with 95% of all dental services funded privately, a level similar to that of the United States. 4 Canadians must pay for dental services through private health insurance, which is usually obtained from employment or by paying out-of-pocket. The 2010 Canadian Health Measures Survey found that 62% of Canadians had private insurance and 6% had coverage through publicly funded programs, leaving almost a third of Canadians with no dental insurance whatsoever. 5 What little public dental care exists is primarily for low-income children, leaving other vulnerable and low-income groups without access to care. This represents a failure of the current system, as those who need care the most are unable to access it. As a result of the exclusion of dental services from publicly funded health care, only 71% of residents of Ontario, the province with the highest dental visit rates, visited a dentist in 2012. 6 Predictably, this value is very similar to the number of Ontarians with dental insurance (68%). 7

Beyond the absurdity of not receiving care for our mouths but receiving it for all other parts of our bodies, dental care is a medical necessity. The most common infectious diseases in the world are dental diseases. 8 Extensive evidence validates the importance of oral health to that of the rest of our body and the fact that many health issues can first be diagnosed through the mouth. 9 For example, one of the first signs of AIDS can be severe gum infection and the first stages of osteoporosis can show up as bone loss in teeth. 7 Oral examinations can also reveal nutritional deficiencies, microbial infections, immune disorders, and oral cancers. 1

Not only can ailments within the body affect our oral health, but oral health can also affect the rest of our body. Infections resulting from poor oral health can complicate diabetes management 10 and systemic inflammation resulting from periodontitis can complicate end-stage renal disease management. 8 Additional studies have linked poor oral health to respiratory disease, 2 premature labour, 11 low birth weight babies, 12 pneumonia, and Alzheimer’s disease. 3 Despite the impact some diseases have on oral health, the public system does not cover the resulting necessary dental care. An example of such impacts is the effect that chronic renal disease has on the mouth including xerostomia, calcifications, enamel hypoplasia, and altered salivary pH. 6

Largely represented in the group of uninsured Canadians are vulnerable populations including seniors, indigenous peoples, and people with low incomes. 13 Having dental insurance is the largest predictor of dental service utilization because without it, costs can be prohibitive. 13 Therefore, the current insurance scheme widens the gap between the rich and the poor as access to dental care is mostly provided to those with middle to high-income jobs. The situation might be worsening as costs of dental care have increased dramatically in the past 25 years while the incomes of low-income groups have remained largely constant. 14 Increasing rates of part-time and temporary employment have also contributed to a decrease in employment–provided dental insurance that the majority of Canadians rely on. 14 Inability to pay for private insurance or out-of-pocket costs can result in oral conditions causing impaired speech, impaired eating, and affected social perceptions which can in turn have negative effects on obtaining employment opportunities. 15

The political climate of deficit reduction through program cuts that began in the 1980’s must come to an end. The absence of a single-payer system for dental care has led to increased costs and poorer health outcomes. 14 The current format of employer–based dental insurance is not sustainable due to increasing costs. 16 Canadians spent $12.1 billion on private dental care in 2010, second only to prescription drugs in terms of private
expenditures.¹⁸ Per capita expenditure on dental care was $350¹⁹ which, by international standards, is high.²⁰

The lack of accessibility to dental care has led to increased use of expensive acute health care settings for acute dental problems that are preventable and best dealt with in a primary dental care setting.³ In 2006, Ontario’s expenditure on these acute dental visits was $16.4 million.¹ These acute care visits increase the volume of people visiting emergency departments and the number of hospital admissions, which are costly care options for preventable oral health problems.³ Providing individuals with an improved ability to seek regular dental care through coverage promotes the utilization of less expensive preventative care options.

Many organizations, including the Canadian Association of Public Health Dentistry, have long been asking for the implementation of universal dental coverage,²¹ and now is the ideal time for this to happen. The Health Accord was a ten–year agreement that outlined the federal funding to be supplied to the provinces for health care. Following its expiration in 2014, there was no action to implement a new accord. The federal government did promise to continue providing some resources to the provinces,²² however, the federal government has progressively decreased its influence on health care delivery since the 1970s when it began providing transfers in relation to gross national product rather than demand, and providing tax credits in lieu of cash transfers.²² Its increasingly hands–off approach to health care in combination with a lack of renegotiation of the Health Accord demonstrates a waning desire to coordinate health care policy across the country. It is important to seriously consider and implement universal dental coverage now, before the Health Accord has expired. Dental care was always meant to be a part of our comprehensive health care system and now this much needed coverage should be implemented.

 disclosures

The author does not have any conflicts of interest.

 references

Teaching Social Pediatrics: the Global Health Initiative Inner City Project

Vignan Yogendrakumar*, MD; Erica Tsang*, MD; Barbara Fitzgerald*, MD FRCP(C)

Citation info: UBCMJ. 2015: 7.1 (30-32)
* Corresponding author: ertsang@alumni.ubc.ca
* Neurology PGY2, Division of Neurology, the Ottawa Hospital, Faculty of Medicine, University of Ottawa, Ottawa, ON
* Internal Medicine PGY1, Department of Medicine, University of British Columbia, Vancouver, BC
* Clinical Associate Professor, Department of Pediatrics, Faculty of Medicine, University of British Columbia, Vancouver, BC

abstract

Social Pediatrics, a medical sub-specialty utilizing a community-based and holistic approach to pediatric care, is increasingly recognized for its effectiveness in addressing the medical and social issues of disadvantaged populations. Exposure to social pediatrics is prevalent throughout residency, but is limited for most medical students. The purpose of this article is to describe an innovative program available to junior medical students at the University of British Columbia (UBC) for learning and practicing social pediatrics within communities of Vancouver. Through this program, medical students are trained on relevant topics, such as the importance of cultural awareness, the effects of poverty on health, and the assessment of developmental pediatric disorders. Students then participate in developmental assessments of children and assist in the formulation of management plans with families and health care teams. In the process, students gain valuable skills in developmental pediatrics, with an emphasis on collaboration and integration with school and community supports.

introduction

Population studies have demonstrated a correlation between social and material inequities and poor health over the course of life.1,2 Children who face financial disadvantages are prone to experiencing developmental delays and to suffering poor relationships with their community and their school. There is a need to educate incoming physicians and health care practitioners about these health inequalities, to better prepare them to address similar concerns in the future. This has led to the development of Social Pediatrics as a sub-specialty. Utilizing a complement of primary and tertiary care resources, social pediatric initiatives aim to provide a holistic, community-based approach to address the medical and social issues of disadvantaged children.3 While exposure to social pediatrics occurs at the residency level, literature describing such exposure for medical students is sparse.3 The purpose of this article is to introduce an innovative program at the University of British Columbia (UBC), where first- and second-year medical students learn and work in underserved communities.

The inner-city area of Vancouver, particularly the Downtown Eastside neighbourhood, ranks among the poorest in Canada.2 Two-thirds of the children from this region start school developmentally-vulnerable.3 In 2006, the RICHER (Responsive, Intersectoral-Interdisciplinary, Child-Community, Health, Education and Research) social pediatrics initiative was developed to provide a holistic approach to improve child health within the inner-city population of Vancouver.4,6

Part of the RICHER framework involves a School Developmental Pediatric Outreach Service that provides developmental assessments to inner-city school children. This outreach service has been very well-received, based on informal feedback from schools and families. However, potential areas of improvement were observed by RICHER investigators: 1) the volume of children requiring assessments vastly outnumber the available providers; 2) there are always more medical trainees who would like to learn in this setting than available positions; and 3) many children and families were unable to follow through on the long list of recommendations generated from the assessments, due to limited resources. As a result of these potential areas for improvement, UBC students and faculty developed the Global Health Initiative (GHI) Inner City Project. The project provided medical students with opportunities to learn while working with vulnerable communities and to help families and schools to meet the recommendations made during the developmental assessments. Students were also involved in recognizing the needs of children and families through formal classroom observations of behavior and through completion of developmental pediatric assessments.

The GHI Inner City Program is a two-year longitudinal program that operates on a volunteer basis. Ten first-year medical students were selected and underwent a training curriculum, designed and reviewed annually by medical students. Upon entering their second year of medical school, students were matched with children and began the formal assessment process.
developmental assessment

The primary element of the project is the clinical observation, assessment, and longitudinal follow-up of select children in the Vancouver School System by medical students. Armed with training in child development, observation skills, and cultural sensitivity, medical students were tasked with eliciting the histories of select children and observing them in the classroom over a series of visits. Children (ages 5-12) were identified by teachers and staff—due to concerns about developmental delay and/or behavioral abnormalities—and were referred to the supervising developmental pediatrician. After consent from the family was obtained, medical students reviewed relevant school files and elicited histories from school professionals, including teachers, counselors, youth, and family workers. A full observational assessment of the children was performed over multiple visits to the classroom and playground. By utilizing tools such as the Ages & Stages Questionnaire (ASQ), medical students assessed the children based on multiple variables, including development milestone achievement, language and communication skills, and interpersonal interactions. Students often met with parents to better understand the children’s home environments and to discuss any parental concerns. Students ultimately reported their findings to the supervising developmental pediatrician, and the formal assessment was completed together with the children and their families. At the end of the assessment, the developmental pediatrician, the medical student, the school team, and the family created a follow-up and management plan. Medical students followed the children and families for one year and helped to connect them to medical services, assessments, and other community resources. In particular, medical students worked closely to facilitate recommendations with those families who have difficulty accessing health care resources. For instance, if a recommendation was made for a child to have an audiology assessment, the medical student would work with the family to ensure that it was carried out.

curriculum

The curriculum includes training seminars, opportunities to shadow senior students during pediatric assessments, and monthly meetings to discuss cases and challenges (Table 1). Training workshops are complemented by a manual containing useful resources that students can use throughout the year as a reference guide to assist in their respective assignments. This system is unique in that the training program was fully designed by UBC medical students. With faculty supervision, students in all four years of training came together and designed a curriculum that would satisfy their learning needs. Since its inception in 2010, the training program and curriculum have been revised on a yearly basis by the cohort of students involved in the program in that academic year. Changes to the curriculum are based primarily on student feedback; but they also take into account input from schools taking part in the program, community program leaders, and UBC faculty supervisors. The training seminars are administered by professionals from multiple disciplines, including social workers, developmental and general pediatricians, parents of special-needs children, and nurses.

outcomes

Despite the growth and positive reception of the program, there are still multiple challenges. One of the primary challenges for medical students has been providing families with support to access long-term community resources. Students are involved in the developmental assessment aspect of the program for one year and it has been difficult to maintain continuity beyond this. In order to address this challenge, medical students are asked to provide continuity of care to previous assignments in addition to performing new assessments. Medical students are provided with the results and recommendations of previous assessments to ensure that previous recommendations are met and families continue to feel supported by the

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Table 1: GHI Inner City: Training Program Seminars

<table>
<thead>
<tr>
<th>Training Workshop</th>
<th>Included Topics</th>
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| Normal development in the pediatric population | • Introduction to child development with emphasis on kindergarten and early elementary school age groups  
• Review of motor (gross and fine), communication, social, academic and adaptive developmental milestones, and red flags in child development |
| Information gathering | • Interview skills with school professionals and others  
• Use and application of screening tools: Focused Observation Tool for Trainees (FOTT) and Ages and Stages Questionnaire (ASQ) |
| Developmental delays | • Introduction to common conditions resulting in developmental delay (e.g. fetal alcohol spectrum disorder, autism spectrum disorder, attention deficit hyperactivity disorder, learning disabilities) including underlying etiologies and diagnosis protocols  
• Investigation and management of developmental delay |
| Child protection | • Role of physicians and health care professionals in recognizing and reporting child abuse  
• Types of abuse, how to report abuse, and procedures when abuse is reported |
| Community mapping | • Walking tour/exploration of inner city area in east Vancouver, including schools and surrounding residential areas  
• Introduction to resources within the community and barriers faced by low socioeconomic status  
• Basics and rationale of assessment mapping |
While exposure to social pediatrics occurs at the residency level, literature describing such exposure for medical students is sparse.

Overall, the GHI Inner City project has grown, and it continues to develop in response to medical student and faculty interest, coupled with an unmet need in the community. From a learner’s perspective, medical students are given the opportunity to perform developmental assessments, and in the process, to learn important observational skills in child development and behavior. They also gain exposure to working with vulnerable populations, appreciate the value of integrating health care with community services and supports, and acquire first-hand experience in dealing with the social determinants of health. It would be valuable to examine whether this program impacts the medical students’ perspectives of empathy, advocacy, and social accountability. Further longitudinal follow-up would also be helpful in elucidating long-term impacts of the program, such as the students’ residency choices. From a community standpoint, the students serve as a liaison between different health care professionals to help families navigate the health care system. This grassroots initiative hopes to affect change in the lives of children living in vulnerable communities and will continue to evolve based on community need. In the coming years, formal evaluation of the program may lead to improved support for inner-city families and enhanced community partnerships.

disclosures

The authors do not have any conflicts of interest.

references

Addressing the Osteoporosis Health Care Gap in British Columbia with Fracture Liaison Services

Gabby Napoleone

Citation info: UBCM Jin 2015; 7.1 (33-35)
° Corresponding author: gnapoleo@sfu.ca
BSc Candidate 2017 in Biomedical Physiology, Department of Biomedical Physiology and Kinesiology, Simon Fraser University, Burnaby, BC

abstract

Fracture liaison services have been developed in parts of Canada, the United States, and other countries around the world and have proven to be a cost–effective means of managing osteoporosis and reducing recurrent fractures. Such a service has not been implemented in British Columbia. As a result, there exists a large gap in osteoporosis care. This gap costs the health care system millions of dollars, and it puts many older adults through needless pain and suffering. Recently, a knowledge translation research project has begun to assist in the development and implementation of a fracture liaison service in B.C.

facing the facts

Low–trauma fractures, classified as fractures that occur with minimal trauma (e.g., falls from a standing position or from coughing/sneezing), are common among Canadian older adults, particularly those over 65 years of age.1,2 Nationally, B.C. has the highest percentage of fall–related hospitalizations, with fractures accounting for 78% of all fall–related injuries.3 Additionally, B.C. has the fourth–highest population growth rate of older adults in the country, and this rate could increase by 23.8% by 2036.4 Older adults are more susceptible to low–trauma fractures, which are often the consequence of osteoporosis.5,6 Compared to the younger population, older adults present to the emergency room (ER) more frequently with fractures and have longer lengths of stay.5 In Canada, annual direct costs associated with hip fractures can reach $600 million and mortality within one year of a hip fracture is 28% for women and 37% for men.6,7 The Canadian Multicentre Osteoporosis Study concluded that hip fractures are the most costly of fragility fractures to the health care system; however, minor fractures, such as wrist and vertebral fractures, can also have major impacts on disability, chronic pain, and lost working days.8

What needs to be done

Developing a program directly addressing the current post–fracture care gap among older Canadians is urgently needed. While a primary fracture can be difficult to prevent, these fractures should be treated as a warning sign of osteoporosis.9,10 However, this is often not done, as fractures are usually treated and recognized as an acute injury by medical professionals. Indeed, fewer than 20% of women and 10% of men receive therapies to prevent future fractures.11 Fracture liaison services (FLS) are programs that can be implemented in a clinical setting and are designed to bridge this gap by taking a prophylactic approach to secondary fractures, thereby improving post–fracture care and avoiding future fractures that can be even more debilitating. A FLS model strives to meet three objectives, often referred to as the three “i’s”: identification, investigation, and initiation.12,13 An FLS model that includes all three of the listed objectives, referred to as a type A model, shows the best increases in the percentage of patients actually receiving osteoporosis treatment compared to models that only address one or some of the objectives.14

Care provided by FLS differs from the standard general practice and care. Current fracture care often begins in the ER, where patients receive good fracture care but do not receive any investigation or appropriate treatments for osteoporosis or falls prevention.15,16 The orthopedic surgeons who follow–up on patients tend to focus on the immediate fracture care and rehabilitation but not on the prevention of future fractures.15,16 On the other hand, FLS begins by identifying all people over the age of 50 with low–trauma fractures for risk factors for osteoporosis and future fractures.12,15,16 Appropriate investigations include ordering bone mineral density (BMD) tests and calculating future fracture risk scores, while initiation of treatment is fulfilled by providing osteoporosis medication and education regarding falls prevention and bone health.11,16

FLS programs in other provinces and countries have proven to be cost–effective in preventing future fractures. The Osteoporosis Exemplary Care Program from the St. Michael’s Hospital in Toronto is one program currently in place that follows the FLS model. This program has been successful in reducing the number of subsequent hip fractures, with a net hospital cost savings of $48,950.17 Likewise, the Concord FLS in Sydney, Australia has seen positive gains by focusing on active identification of low–trauma non–vertebral fractures and post–fracture management.18 Results following implementation of the Concord FLS showed only 4.1% new fractures and a dramatic reduction of...
fracture rates (80%) over a four–year period in patients referred to FLS intervention, compared to a control group, which had an increased refracture rate and 19.7% new fractures. In 2012, the Southern California Permanente Medical Group developed the Kaiser Permanente Healthy Bones Program, a comprehensive osteoporosis management program that encourages pharmacological management of osteoporosis and patient engagement. This program saw not only a significant decrease in the risk of hip and distal radius fractures, but also a decrease in overall costs to the health system and an increase in patient quality of life. Similar health–economic benefits were demonstrated in an FLS randomized control trial conducted in Edmonton, Alberta. The intervention group was more likely to receive appropriate osteoporosis treatment (67% vs 26% in control group), and was found to have gained quality adjusted life years. With the modest cost of $56 per patient, this FLS program saved the healthcare system $260,000 over a two–year time period.

what is being done now

B.C. has a unique set of circumstances that could make the implementation of an FLS a challenge. One barrier is the limited access to BMD testing and osteoporosis medication through public drug plans and B.C. Osteoporosis Guidelines. Another is cost; most of the expenses incurred to implement a type A FLS in B.C. involve the hiring of a nurse practitioner (NP) at 27 full–time equivalents (37.5 hours/week). However, a cost–effectiveness analysis for B.C. by Osteoporosis Canada predicts that even with the cost of hiring a NP, the reduction of future fractures and potential long–term care admissions would lead to a savings of over $3 million by year one and $60,135,755 by year eight. A prototype FLS is currently underway at Peace Arch Hospital (PAH) in White Rock, B.C. This prototype program is working in collaboration with the Centre for Hip Health and Mobility (CHHM), a University of British Columbia research centre. Funding for the research and evaluation component of the program is being managed by the CHHM with funding provided by the Ministry of Health of B.C. and PAH Foundation. PAH provides health care to a community within Fraser Health that has a high proportion of older adults (29%) as well as a high prevalence of osteoporosis. The objective of the study is to demonstrate that a FLS in B.C. can break the cycle of recurrent fractures and to provide a FLS framework for dissemination to other health authorities. As a pre– and post–quasi experimental design, the FLS prototype will have two independent cohorts of patients, the control group and the intervention group. Using the above–mentioned type A model, patients in the intervention group will be identified at the PAH Orthopedic Cast Clinic, while a NP will begin the initiation and intervention. In B.C., NPs can order most diagnostic tests, prescribe medications, and communicate with family physicians for a successful transition from the FLS to the community. Patients in both groups will be contacted for a six–month follow–up. During this time, primary outcome measures will be considered fulfilled if one of the following had been achieved: BMD had been ordered, referral to an osteoporosis consultant had taken place, or the patient was started on osteoporosis medication. Although the prototype FLS is being implemented within the Fraser Health Authority, the potential to disseminate to other health authorities throughout B.C. is high. FLS analyzes fractures through a larger lens, by focusing on secondary prevention rather than viewing fractures as a single acute event. This has led to decreased recurrent fracture rates and health care costs in jurisdictions that have implemented FLS programs widely. The current B.C. FLS project has the potential to create a strong FLS prototype that could be expanded across B.C. and improve the health of older adults in British Columbia.

disclosures

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references


The Healing Garden. Baillie Redfern, Vancouver Fraser Medical Program, UBC Faculty of Medicine, Vancouver, BC

Traditional medicines have been used for thousands of years by Indigenous people in Canada, with demonstrated efficacy in treating a wide range of health issues. Many of the medicines in contemporary biomedical treatments are derived from plants and herbs used by Indigenous people throughout the world. “The Healing Garden” beadwork piece includes both traditional Indigenous medicines and traditional Chinese medicines. I created this piece to reflect the reality of being an Indigenous medical student living, working and studying in Vancouver. The amount of material medical students are responsible for is sometimes described as ‘drinking from a fire hose’ but it’s important to remember the demographic you serve as a physician and the teachings that a garden can grow.
Traditional Chinese Medicine: Learning from Dr. Henry Lu, PhD, Dr.TCM

Alvin H. Ip a, BKin
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a MD Candidate 2016, Faculty of Medicine, University of British Columbia, Vancouver, BC

Traditional Chinese Medicine (TCM) originated in China over 2,500 years ago and represents a myriad of modalities and techniques, such as acupuncture, herbal medicine, tui na (Chinese therapeutic massage), and tai chi. TCM is based on the idea that qi (the body’s vital energy) flows through the meridians (channels) of the body and keeps a person spiritually, emotionally, mentally, and physically healthy—in essence, qi maintains a state of “balance”. When qi is blocked, a person will tumble out of “balance” and suffer disease. Therefore, TCM treatments attempt to restore a state of “balance” in order to alleviate disease.

In Canada, the history of TCM started with the significant immigration of Chinese workers during the gold rush and development of the Canadian Pacific Railway in the 1880s. Although the use of TCM was initially limited to the Chinese community, it is now more well-known and accepted within the Canadian population. For example, acupuncture has become very popular in Canada: 17% of the Canadian population have used it at least once in their lifetime. In 2008, British Columbia became the first province in Canada to reimburse acupuncture treatments as part of its Medical Services Plan. While still in its early stages, the regulation of TCM in Canada is importantly becoming more rigorous. Five provinces in Canada have approved the legislation of TCM as a health profession and five corresponding provincial Colleges of TCM have been formed. These Colleges benefit from self-regulation and have established codes of ethics and professional practice standards.

I had chronic constipation and constant nasal discharge since high school. The symptoms continued into my college years when I moved to the city of Taipei, Taiwan. As Western doctors were available in the city, I did not think of TCM doctors because I did not believe in the practice of TCM. One by one, I consulted Western doctors, but none of them could help me. When I graduated from college, I had the chance to pursue graduate study in the United States. I was excited because I thought that the United States was one of the most advanced nations in the world and that my chronic constipation and constant nasal discharge would have a cure at last. Upon my arrival in Honolulu, I was anxious to consult American doctors for my problems. However, I did not expect them to give me the same treatments as I had been given in Taiwan, the same laxatives that caused pain to my intestines. All in all, I was very disappointed. It made me realize that the use of laxatives in Western medicine is not effective for chronic conditions like mine.

How did you come to practice TCM?

Dr. Henry Lu, PhD, Dr.TCM is a licensed doctor of TCM in British Columbia and has practiced Chinese medicine since 1972. He received his PhD degree from the University of Alberta and has taught at the University of Alberta and University of Calgary. Dr. Lu has translated and published more than 30 books on TCM. He is most famous for his complete Chinese–to–English translation of Nei-Jing (colloquially known as the “Chinese Medical Bible”), a classic that not only inspired the development of TCM, but is also highly regarded by Chinese physicians. Dr. Lu founded the International College of Traditional Chinese Medicine of Vancouver in 1986. As President, he plays an active role in teaching TCM and developing its accredited curriculum. Dr. Lu has been involved in the introduction of legislation for TCM in British Columbia and has sat on the Federal Board of Natural Health Products in Canada. Dr. Lu was interviewed on the topic of TCM, including its role in today’s health care and how he believes TCM and conventional Western medicine can work together.

How did you come to practice TCM?
As to treatment safety, satisfaction, or both.

Two medical systems cannot be merged. However, it is possible to build bridges between them by putting the two medical systems together to compensate for their own strengths and weaknesses; some TCM practices are evidence-based. I believe that TCM and Western medicine can work together? TCM and Western medicine are different from each other, so they cannot be merged. However, it is possible to build bridges between them by putting the two medical systems together to compensate for poor clinical effects, to increase patient satisfaction, or both.

TCM and Western medicine are different from each other, so they cannot be merged. However, it is possible to build bridges between them by putting the two medical systems together to compensate for poor clinical effects, to increase patient satisfaction, or both.

TCM practices are evidence-based. For example, I cannot claim that I have cured atrophy of Peter’s gums unless Peter’s atrophy is gone. I cannot say I have cured Peter’s headache unless his headache is gone. This is the best evidence. In many cases, the patient’s testimonial is the best evidence. I don’t need any other evidence. I would consider myself to be a successful TCM doctor with testimonials from all my patients. But of course, this is hard to come by.

What is the nature of the practitioner–patient relationship in TCM?

As a rule, friendship characterizes the practitioner–patient relationship in TCM; a patient often sees the same TCM doctor, like a family doctor in Western medicine.

How do you think that TCM and Western medicine can work together?

TCM and Western medicine are different from each other, so they cannot be merged. However, it is possible to build bridges between them by putting the two medical systems together to compensate for poor clinical effects, to increase patient satisfaction, or both. Each system has its own strengths and weaknesses; some diseases may be better treated by Western medicine, while others may be better treated by TCM, and still others may be better treated by a combination of the two systems. To a large extent, the interaction between the two medical systems is a comparative and competitive approach in clinical practice.

As a general principle, if a TCM doctor can treat a patient successfully, one should do so. If this is not the case, then referring the patient to a Western doctor for treatment would be appropriate. On the other hand, if a Western doctor can treat a patient successfully, one should do so. If this is not the case, then referring the patient to a TCM doctor for treatment.

I believe that TCM and Western medicine can work together in four interactive ways:

1. Use advanced methods of Western diagnostics to confirm or direct TCM diagnoses.

Many advanced methods of diagnostics used in Western medicine may be used to confirm a TCM doctor’s diagnosis or narrow down the possibilities so the TCM doctor may be more confident in finding the correct diagnosis. Methods of diagnostics include tissue biopsy, ultrasound, x-ray, and computed tomography.
2. Use advanced methods of Western diagnostics to evaluate TCM treatment effect.

Many advanced methods of diagnostics in Western medicine may be used to evaluate a Chinese doctor’s treatment effect. If a patient is treated for hepatitis, it is relevant to see if the virus or antibody, which was present before the treatment, is gone. If a patient is treated for hypertension, it is important to take blood pressure to see if it returns to normal following TCM treatment. If a patient is treated for cholecystitis, it is important to see if the gallstone is gone.

3. TCM offers Western medicine opportunities for treatment and research.

TCM doctors have successfully treated many symptoms and diseases and Western doctors can conduct research into the causes of their success. There are many different herbs that are used in TCM but why are they effective, scientifically speaking?

4. TCM and Western medicine benefit from each other to improve clinical effects and patient satisfaction.

From the patient’s viewpoint, both a Western doctor and a TCM doctor should understand the strengths and weaknesses of each system. Patients have everything to lose if a disease can be better treated by Western medicine, but a TCM doctor is not aware of it and insists on TCM treatment. The same thing will happen if a disease can be better treated by TCM, but a Western doctor is not aware of it and insists on Western treatment. In the emergency department, for example, a patient is likely to have an accident, stroke, or heart attack and Western medicine is preferred for its access to modern technology. In such cases, after doctors of Western medicine have given initial care, they may hand the patient over to a TCM doctor for follow-up.

From the patient’s viewpoint, both a Western doctor and a TCM doctor should understand the strengths and weaknesses of each system.

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Chronic pain is defined as ongoing pain that lasts longer than the typical period of time expected for healing usually taken to be three months.\(^1\) It can occur as a result of an injury such as back strain or an ongoing condition such as cancer; or it can have no known cause. Approximately one in five Canadian adults currently lives with chronic pain.\(^2\) Shockingly, over half of those who report chronic pain also report suffering for ten years or more, indicating that a significant proportion of their life has been affected by this condition.\(^2\) This multifaceted disorder is associated with significant disability and financial burden,\(^3\) making effective and adequate treatment a top priority for patients, clinicians, and policy makers alike. This article will briefly discuss the treatment modalities for chronic pain and the lack of coverage for non–biomedical treatment options under Canadian public health insurance.

Conventional biomedical treatment options for chronic pain include prescription opioid analgesics and surgical intervention. While both of these practices remain important therapies for pain management, they are often not recommended as first–line therapy for mild–to–moderate cases.\(^4,6\) Recommendations for first–line therapy vary according to the source, location, and strength of chronic pain symptoms, and they often include non–biomedical treatments.\(^4,6\) For example, according to the 2009 guidelines for persistent, nonspecific low–back pain released by the National Institute for Health and Care Excellence (NICE), the recommendation for early treatment is one of exercise, manual therapy, or acupuncture; psychological and/ or pharmaceutical treatment can also be included in the treatment plan, depending on the patient and the nature of their symptoms.\(^6\)

Currently, treatments for chronic pain management included in Canadian public health insurance plans are largely restricted to the conventional biomedical treatment options provided by physicians. This is problematic, as several pain management guidelines recommend the use of psychological, behavioural, or less–invasive physical interventions, either on their own or in conjunction with conventional pharmaceutical treatment.\(^4,6\) In Canada, patients are often required to pay out–of–pocket for less invasive, non–conventional treatment options, such as acupuncture, cognitive behavioural therapy, or customized exercise plans. This creates an issue of access, where not all patients can afford uninsured treatment, especially patients who are low–income or without private health insurance. The prevalence of chronic pain is high among people with low income and people who are work–disabled,\(^7\) suggesting that the affordability of health care is a relevant issue in chronic pain management.

Currently in Canada, services for chronic pain management are fragmented across the public and private health systems, with an emphasis toward biomedical treatment within the public system. Patient demand for less–conventional treatment is evidenced by the very high use of complementary and alternative medicine by people with chronic pain.\(^6,9\) In addition to this, under–treatment of chronic pain is a consistently–identified health care problem,\(^6,10\) possibly due to a combination of physicians’ fear of over–prescribing and a lack of other publically–insured treatment options. Pain care advocacy groups have made multiple efforts to improve the treatment of chronic pain, and in 2014, the government of British Columbia invested one million dollars to support the training of patients and medical professionals in chronic pain management.\(^11\)

Hopefully such efforts already have and will continue to have a positive impact on the lives of those affected. However, if we consider access to chronic pain management a fundamental human right, and if we value efficacy over convention, a more integrated approach to public health care—one that includes coverage for a wider range of non–biomedical treatment options—is necessary.

disclosures

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references

Evidence–Based Medicine and the Growing Popularity of Complementary and Alternative Treatments

Stephanie Lake*t, BHSc MSc
Citation info: UBCMJ. 2015: 7.1 (40-41)
*t Corresponding author: s.lake@alumni.ubc.ca
1 PhD Candidate 2018, School of Population and Public Health, Faculty of Medicine, University of British Columbia, Vancouver, BC

Although society has experimented with unorthodox methods of treating health problems for centuries,1 the business of complementary and alternative medicine (CAM) has grown and diversified dramatically over the past few decades.2 Despite the unconventional nature of CAM interventions, their extensive promotion through mainstream outlets blurs the lines between what is and is not scientifically accepted. For example, cardiothoracic surgeon and popular television personality Dr. Oz recently came under fire at a U.S. Senate hearing after encouraging viewers to take various products that he deemed “miracle” weight-loss cures, despite his awareness of their lack of scientific evidence.3 While it is hard not to be enticed by the promise of CAM, keeping a close eye on its evidence will be critical as the overlap between personalized and evidence–based medicine increases.

Between 29 % and 42 % of American adults have used some form of CAM in the previous year.4 Studies of CAM use among children living with cancer from various countries around the world have recorded CAM prevalence rates as high as 91 % in some samples.5 Despite the popularity of CAM treatments, we still know shockingly little about them. This is because CAM interventions are regulated (and sometimes not regulated at all) completely separately from conventional medicine,6 and they therefore may be marketed and used without standing up to the same clinical tests of efficacy and safety. In contrast to conventional medicine, testimonial reports, such as those from Dr. Oz, often form the basis of CAM marketing. In reviewing CAM websites, researchers have found various anecdote–based recommendations for therapies that have been scientifically shown not only to have little benefit, but to even be potentially dangerous.7 Not bound by the same regulations as conventional medicine, CAM marketers may conveniently select compelling anecdotes that, despite holding no validity of measure, present as hopeful messages to a desperate patient.

While some CAM trials appear to exhibit strong scientific rigour; many others are fraught with methodological shortcomings.8 One common drawback to clinical CAM research is a lack of comparison to a placebo—or control—group.9 The problem with relying solely on treatment group outcomes is the utter neglect of effects that could arise from not receiving the treatment, such as natural improvement, regression to the mean, and the placebo effect, a physiological improvement arising from simply going through the motions of being “treated.” Unless we are able to measure baseline and post–treatment effects in both a treatment group and a control group, there is no way to confirm that the benefits gained were actually due to the treatment itself. In cases where CAM randomized controlled trials (RCT) exist, study validity is still called into question. For example, a Lancet review, which stirred controversy between CAM and conventional medicine proponents,10 concluded that, after controlling for biases in both CAM and conventional RCTs, there was only weak evidence for a specific effect of CAM therapies, while there was strong evidence in support of conventional therapies.11

As more patients adopt an interest in CAM, its integration with conventional practice is becoming more common. For example, roughly 40 % of American mainstream physicians have referred patients for acupuncture and/or chiropractic therapies.12 These types of CAM treatments might appear more favourable to physicians due to their longer histories of scientific scrutiny, which have allowed them to be increasingly seen as accepted practices.13-15 Physicians might also be integrating CAM into their practice in an effort to prevent the dangers of patients using it without their consultation. For example, despite decades of research showing the popular herbal supplement St. John’s wort to be an effective treatment for some forms of depression,16,17 patients taking this product without physician consultation run the risk of suffering potentially dangerous reactions due to the supplement’s ability to interact with a long list of conventional drugs.18,19

It is becoming increasingly important for physicians to be aware of the evidence base surrounding different CAM options in order to develop a safe and effective treatment plan for their CAM–using patients. Evidently, there is a strong and ongoing need for rigorous scientific evidence to inform the use of CAM.

But if we apply the same evidence–based model for CAM, would we be moving past the point of CAM altogether? As science writer Michael Specter has so simply put it, It is becoming increasingly important for physicians to be aware of the evidence base surrounding different CAM options in order to develop a safe and effective treatment plan for their CAM–using patients.
“If we were to do that, there would really be nothing ‘complementary’ or ‘alternative’ about CAM.”

CAM approaches the healing process as a function of the “whole system,” rather than through targeting a single physiological component, where the effect of the CAM approach is said to be greater than the sum of its individual effects. As such, CAM proponents argue that in applying conventional study design to unconventional interventions, the true effect of the treatment is being diluted through the process of attempting to single it out. The deductive evidence–based model by which conventional medicine is accepted into practice (i.e., understanding the molecular biology of a therapy before moving on to various stages of clinical trials and eventual practice) stands in stark contrast to the inductive approach used for CAM (i.e., widespread use of a CAM therapy before evaluation through clinical trials and eventual understanding of its molecular biology).

Authors have suggested developing a separate framework for the evaluation of CAM, which takes into account its holistic philosophy to bridges the gap between the widespread positive anecdotal reports of CAM and the conventional-style evidence that opposes them. Accordingly, CAM researchers are advocating for a comprehensive evidence-based evaluation model that uses observational (e.g., cohort, case-control, case series) research to complement RCTs, while considering the patient perspective, the conceptual basis, and the medical professionalism of the therapy through qualitative analysis. Advocates of this so-called Whole Systems Research model suggest that the integration of non-randomized studies will help to capture health outcomes that may have been missed under the highly manipulated RCT environment (i.e., the effect of the treatment on the body, mind, and spirit as a whole).

As we move into the era of individualized, integrated, and alternative medicine, we will have to decide what we are willing to accept as a “gold standard” for CAM, and whether this can stray from the pre-defined, single-outcome approach with which conventional practitioners are so comfortable. In the meantime, available unbiased and evidence–based resources for CAM, such as the Natural Medicines database, should be used by conventional practitioners and shared with patients. Safe and positive results could be possible with CAM, so long as we are able to set biases aside and to separate the evidence from the anecdote.

disclosures

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references

Regulating Health Professions in British Columbia

Pretty Verma, BSc
Citation info: UBCMJ. 2015: 7.1 (42-43)
 Corresponding author: pretty.verma@alumni.ubc.ca
 MD Candidate 2016, Faculty of Medicine, University of British Columbia, Vancouver, BC

Walking down Davie Street to reach St Paul’s Hospital, one encounters a wide variety of businesses and shops. Turning to walk up to the Thurlow Street hospital entrance, one will pass a marijuana dispensary, a naturopathic clinic, and an acupuncture shop, each offering their own unique treatments for chronic pain. Here on the west coast, the depth and breadth of diverse medical services available all on one block is remarkable. As a third-year medical student undergoing rigorous training with endless qualifications and examinations to pass, I start to wonder about the training and legal rules facing healthcare professionals besides physicians. For naturopathic, homeopathic, and traditional Chinese medicine practitioners, what regulations are in place to ensure a high standard of care?

In British Columbia, the Ministry of Health regulates 26 professions, of which 25 have self-regulated bodies and colleges guided by the Health Professions Act. These colleges have the authority to govern their members’ practices, and they must do so with the public interest in mind. Just as the Royal College of Physicians and Surgeons’ mandate is to serve and protect the public, such is also the case for the 26 self-regulated professions. This means that any comment or concern raised by the public against a service provided by a practitioner goes directly to his/her overseeing college, which can choose to investigate the comment, assess the practitioner, and if needed, suspend or remove licenses to practice. In reality, practitioners do not undergo regular inspections. Bodies that are regulated under the Health Professions Act include: Dentistry, Pharmacy, Medicine, Chiropractics, Dietetics, Massage Therapy, Licensed and Registered Nursing, Naturopathic Medicine, and Traditional Chinese Medicine and Acupuncture.1 Homeopathy, on the other hand, is notable for being currently unregulated by the B.C. government; instead, the profession is guided by a group of invested organizations, such as the Vancouver Homeopathic Academy, the North American Society for Homeopaths (NASH), and the Council for Homeopathic Certification (CNC) in conjunction with European and International Councils for Homeopathy.2

Given that each profession has its own regulatory body, what comprises these bodies, and what are their guiding principles beyond what the Health Professions Act authorizes? Regarding governance, provinces and territories are tasked with overseeing the provision of health services in their jurisdictions, while federal regulations are limited to safety and sales of natural health products under the Food and Drug Administration.3,4 Currently in B.C., homeopaths belong to an unregulated body. Homeopathic practitioners train for four years; each year consists of eleven three-day training sessions that run longitudinally, as per the program offered by the Vancouver Homeopathic Association.5 In contrast, naturopaths in B.C. are guided by the British Columbia Naturopathic Association. Naturopaths are required to possess a bachelor’s degree in arts or sciences, followed by four years at an accredited naturopathic college.6

Lastly, those practicing traditional Chinese medicine work under the College of Traditional Chinese Medicine Practitioners and Acupuncturists of B.C. (CTCMA) and have different training requirements for Acupuncturists, Traditional Herbalists, Traditional Medicine Practitioners, and Doctors of Traditional Chinese Medicine.7,8

More important than depth and scope of training, however, is the question of how the Health Professions Act regulates the scope of practice of various health disciplines. A glance at the Ministry of Health website quickly links to “regulation” and “scope of practice” as part of each profession’s bylaws. For instance, naturopathic medicine is defined as “the health profession in which a person provides the services of prevention, assessment and treatment ... using education and naturopathic techniques, therapies or therapeutics to simulate or support healing processes;”9 an accompanying scope of practice statement declares that “a registrant may practice naturopathic medicine.”9 This is followed by a list of permitted but restricted activities, including “procedures on the tissues below the dermis or below the surface of a mucous...

...any comment or concern raised by the public against a service provided by a practitioner goes directly to his/her overseeing college, which can choose to investigate the comment, assess the practitioner, and if needed, suspend or remove licenses to practice. In reality, practitioners do not undergo regular inspections.
membrane”, “administration of substances by injection, inhalation, irrigation, enteral instillation…”9, and so forth. Subsequent to the list, clarifications regarding drug formulary allowances and prescription privileges are detailed.9

If there is an issue with the service one receives, a patient can file a complaint with the appropriate college, which will investigate further. If a patient is unhappy with the college’s final decision, they can apply to have the matter reviewed by the Health Professions Review Board (HPRB), which is an independent tribunal that reviews the thoroughness of the college’s investigation and the fairness of their decision.10 Thus, similar to the medical profession, other health disciplines are given boundaries, scopes of practice, and are largely regulated by their own colleges in most provinces. But how successful is the model of self-regulation? Colleges only disclose the name of the practitioner involved with a complaint once formal disciplinary action is taken. While colleges, such as the College of Naturopathic Physicians of British Columbia, publish lists of practitioners with disciplinary actions, it is hardly a proper account of the efficacy of our regulatory systems, as the total number of complaints is not listed.11 Furthermore, a list of complaints is not indicative, as some might be biased or not sufficient to warrant disciplinary action.

Overall, the strength of regulation depends on community reporting to bring about change. As it stands today, there are simply not enough financial resources to support routine inspection of all healthcare practitioners, and many feel this is unnecessary. Of those colleges that do perform office visits, it is worthwhile to note that the purpose of the review is for “education and practice improvement, not to discipline,”12 as stated on page 39 of the Ministry of Health’s Quality Assurance program document. Indeed, the review itself is usually “limited to a visual inspection” with “no observation of clinical service delivery to patients, in part because of privacy issues.”12 The Quality Assurance Program Review notes that identifying “bad apples” is a more traditional stance on quality improvement, an assessment that engenders distrust, defense tactics, and frustration. We now strive to function on a model governed by a “Theory of Continuous Improvement”,12 which is more sensitive to the cost and ineffectiveness of relying on inspection to improve quality. These are measures that must continue but that do not actively improve care to the same extent as initiatives such as continuing education.12

Now as I walk by the shops on Thurlow Street advertising their cures for Crohn’s disease, back pain, and weight loss, I am reminded that health care practitioners of many schools of thought are governed by a set of rulings that are strictly regulated and enforced. However, the responsibility for bringing substandard practices to light lies with the clients who seek out these health services; in essence, the efficacy of the regulations is directly proportional to the public’s willingness to engage with the process. Ultimately, it appears that our laws are only as strong as the people who support them.

disclosures

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references

The Need for Ethnically Diverse Stem Cell Donors

Warren Fingrut°, BSc MD
Citation info: UBCMJ. 2015: 7.1 (44-47)
°Corresponding author: wfingrut@alumni.ubc.ca
a Internal Medicine PGY1, Faculty of Medicine, University of Toronto, Toronto, ON

abstract
A majority of patients who are in need of a stem cell transplant cannot find a suitable genetic match in their families and rely on unrelated donors, individuals who have registered with a stem cell donor database. Many unrelated stem cell donor registries currently direct their donor recruitment teams to target and recruit ethnically–diverse individuals as stem cell donors. However, despite a large body of evidence in the literature highlighting the need for ethnically–diverse stem cell donors, no resource exists that explains why building an ethnically–diverse stem cell donor database is important or needed. The purpose of this review article is to summarize evidence in the literature that highlights the extent of ethnic and racial disparity in match rates in registries in North America and worldwide. Further, the author explains the multifactorial nature of this disparity, with contributing factors including ethnic differences in representation, genetic diversity, and attrition rates. This review aims to 1) equip donor recruitment staff and volunteers with a resource to inform their recruitment efforts; and 2) to support the donor recruitment team to target recruitment of ethnically–diverse stem cell donors.

introduction
Over 70% of patients who need a stem cell or bone marrow transplant cannot find a match in their family and require an unrelated donor to proceed with treatment. These donors are recruited at stem cell drives where individuals are invited to swab their cheeks and to sign a consent form to register as potential stem cell donors. A growing body of literature highlights the need for ethnically–diverse stem cell donors. Patients in need of a stem cell transplant are more likely to find a genetically–matched donor from their own ethnic group. This is due to the association between individuals’ genetic heritage and their Human Leukocyte Antigen (HLA) alleles, which are used to match patients to donors. Minority status is often associated with less–common HLA types, underscoring the importance of building ethnic diversity into the world’s stem cell and marrow donor registries. Some registries, including the U.S. National Marrow Donor Program (NMDP)’s “Be The Match” registry, have already adapted their recruitment approach to specifically target ethnic and racial minorities.

The Stem Cell Club was founded in 2011 at the University of British Columbia to improve both the quality and the quantity of membership on Canada’s Stem Cell Donor Database. A majority of the males we recruit at our stem cell drives are non–Caucasian (53%), and we also hold ethnically–targeted stem cell drives to recruit Aboriginal Peoples and members of other ethnic minorities. The primary aim of this review article is to provide an overview of the evidence behind the need for ethnically–diverse stem cell donors. This paper will be used to equip our team with an evidence–based resource to inform our stem cell drive campaigns, which currently feature targeted recruitment of ethnically–diverse Canadians as stem cell donors. This review seeks to inform donor registry strategic planning and to offer guidance to any group or individuals who coordinate or volunteer at stem cell drives.

Minority status is often associated with less–common HLA types, underscoring the importance of building ethnic diversity into the world’s stem cell and marrow donor registries. by Allan et al., Canadian patients who self–identified as East Indian or Caucasian were most likely to find a donor, with respective success rates of 59.6% of 47 requests and 50% of 2058 requests. However, patients who self–identified as Black (24.5% of 53 requests) or Chinese (14.3% of 14 requests) had much lower match rates. In a 2012 study, Gragert et al. used HLA haplotype frequencies to project HLA match rates for the different populations served by the Canadian OneMatch registry of the Canadian Blood Services. They calculated that match rates for Canadian patients searching for adult unrelated stem cell donors ranged from 2% for the Black
group to 46% for the Caucasian group. Similarly, in the United States, multiple studies looking at the U.S. NMDP’s “Be the Match” registry have confirmed that patients from U.S. racial- and ethnic-minority groups are consistently less likely to find an HLA-matched donor. Unrelated donor genetic match rates for Caucasian, Hispanic, Asian/Pacific Islander, and African–American ethnic groups, estimated a number of different ways, have been shown to range from 68-75% for Caucasian people, 34-44% for Hispanic people, 27-68% for Asian/Pacific Islanders, and 19-35% for African–American people.

This trend holds true outside of North America as well. A study by Heemskerk et al. analysed unrelated donor searches performed for patients at Dutch transplantation centres, searching the Bone Marrow Donors Worldwide network of donor registries. The authors demonstrated that a patient's country of origin influenced match rates; between 1996 and 2000, only 11% of the patients of Northwest European origin (n=211) lacked a compatible donor somewhere in the world, compared to 50% of patients of non–Northwest European origin (n=56). A 2013 study found that patients of Israel's Arab minority had a significantly lower chance than patients of Jewish origin of finding a match on Israel's local donor registries (25% versus 64%, respectively). Another study in India modelled differences in donor match rates among 14 regional subgroups—each with different ethnic/racial demographics—and showed differences in match rates between these regional groups.

Disproportionate representation of ethnic and racial minorities on stem cell donor databases

Today, many non–Caucasian ethnic groups are not properly represented on the world’s registries. This is certainly true within individual countries. For example, on Canada’s OneMatch Stem Cell and Marrow Network, as of May 2015, 71% of registrants are Caucasian. Canadian Black donors, Aboriginal donors, and Southeast Asian donors each make up less than 1% of Canada's registry, despite making up 2.9%, 4.3%, and 2.8% of the Canadian population, respectively. Similarly, in 2009, on the U.S. NMDP’s “Be The Match” registry, African–American donors and Hispanic donors made up 7.9% and 9.9% of the registry, despite making up 13.1% and 16.9% of the American population. Non–Caucasian groups are also underrepresented on worldwide network of potential stem cell donors. The vast majority of the world's registered stem cell donors are from registries based in Western Europe and the United States, with most countries in Africa, Asia, and Eastern Europe—and their ethnic/racial populations—being dramatically underrepresented. This disproportionate representation of specific ethnic groups, both within individual registries and worldwide, contributes to observed differences in match rates between ethnic groups.

Ethnic/racial differences in genetic diversity

The above studies highlight both smaller donor pools and disproportionate representation of ethnic and racial groups as contributors to decreased match rates. However, studies have also shown that some ethnic/racial groups have more diverse HLA alleles and would be less likely to find a match even if they had an equal proportion of potential donors as Caucasians. A 1995 study by Beatty et al. demonstrated that African–Americans are more polymorphic with respect to HLA and are therefore less likely to find donors at any given registry size. The authors demonstrated this in two ways. First, they modelled new HLA phenotype acquisition, which is the chance that a newly recruited stem cell donor has a novel combination of HLA alleles. They showed that 90% of newly recruited African–American donors had new HLA phenotypes, compared to 72% or 74% respectively for Asian–American or Caucasian donors. Second, the authors modelled match rates in hypothetical registries composed of donors solely of the same ethnic group. They found that Hispanic and African–American people in these hypothetical ethnically–homogenous registries were still less likely to find a match than were Caucasian, Asian–American, or Native American people. Another study by Mori et al. examined HLA allele phenotypes of the NMDP donors. These authors found that African–American and Asian–American people had a large number of HLA alleles unique to their ethnic groups, whereas Caucasian, Latin American, and Native American people shared a large number of common HLA alleles.

Switzer et al.'s study also demonstrated that, across all ethnic and racial groups, ambivalence played a critical role in donation–related decisions.
have health conditions that prevent them from donating, some are temporarily unavailable due to travel or work commitments, and some are no longer willing to contribute. The U.S. NMDP statistics show that 20% more Caucasian registrants move forward with the donation process when contacted, compared to non–Caucasians (the authors reported a 60% attrition rate for minority groups vs. 40% attrition rate for Caucasians). A study by Confer found that, on the U.S. NMDP, rates of donor unavailability were higher among donors who identified as Black, Asian/Pacific Islander, or American Indian/Alaska Native. Racial and ethnic minority populations were shown to be significantly more likely than Caucasian populations to be unable to be contacted, to be contacted but not interested when asked to donate, or to be potentially interested to donate but temporarily unavailable. In contrast, the rates for donor deferral for medical reasons were similar across racial and ethnic groups. A similar study looking at The U.K. Anthony Nolan registry found that African, African–Caribbean, Asian, Jewish, and Mediterranean donors were significantly more likely to be unavailable for later stages of the donation process, compared to Caucasian donors.

The increased attrition rates among members of ethnic and racial minority groups disproportionately disadvantage minority patients searching for a donor. This increased attrition is not necessarily due to differences in general willingness to donate, and it might be secondary to specific barriers to proceeding with the donation process. A study conducted by Switzer et al. identified multiple cultural, psychosocial, and donation–related factors associated with race/ethnic group attrition from the registry. Compared with Caucasians, potential donors from African–American, Hispanic, and American Indian groups reported more religious objections to donation; African–American people and Asian/Pacific Islanders reported less trust that stem cells would be allocated equitably; Asian/Pacific Islanders and Hispanic people reported more concerns about donation; and Asian/Pacific Islanders reported a greater likelihood of having been discouraged from donating. The authors suggest that these findings could be used to inform media campaigns and key messaging at the time of recruitment for stem cell drives targeting these ethnic and racial minority groups in the United States.

Switzer et al.’s study also demonstrated that, across all ethnic and racial groups, ambivalence played a critical role in donation-related decisions. The authors propose that at stem cell drives, ambivalent potential donors from all racial and ethnic groups could be identified, and any concerns that may be producing ambivalence could be directly addressed (including medical concerns about the donation process, religious objections, or mistrust of the medical system). The authors suggest that registrants be offered a cooling–off period if residual concerns remain, similar to what is recommended in the context of living solid–organ donation. They further suggest that, for all groups, self– and social– identification as a potential donor could be emphasized as a potential buffer against attrition.

Overall, addressing the barriers that limit participation of minority groups will be paramount to boosting registration and lowering attrition rates of ethnically–diverse stem cell donors. To achieve this, further research is needed to explore the barriers experienced by specific ethnic and racial groups and to identify strategies to mitigate those barriers.

### Conclusion

Despite the continued expansion of the global stem cell and marrow network, people of all ethnicities are needed to register as potential donors. In a 2009 paper by Bergstrom et al., the authors estimated optimal U.S. NMDP registry size for each race and concluded that there is not an optimal amount of donors registered yet for any ethnicity. Furthermore, the authors completed a benefit–cost analysis and expanded their analysis in a 2011 paper to include individuals of mixed race. They found that the benefits of recruiting additional donors exceeded costs for all races/ethnicities. African–American people were shown to have the highest benefit–cost ratio for being recruited as potential stem cell donors, with benefits being ten times the costs. Mixed–race African–American/Hispanic individuals and African–American/Caucasian individuals had the next highest benefit–cost ratios of 9.1 and 8.4, respectively. Recruitment of Caucasian individuals was lowest, at a 4:1 benefit–cost ratio.

Altogether, the above studies demonstrate ethnic differences in HLA match rates. These differences result from a combination of smaller donor pools and disproportionate representation of ethnic/racial groups on the world’s stem cell donor registries, and ethnic/racial differences in both HLA diversity and donor attrition rates. Targeted recruitment of ethnically–diverse individuals to become potential stem cell donors is warranted to capture a range of HLA phenotypes and to improve equity in match rates between Caucasians and other ethnic groups.
disclosures

The author does not have any conflicts of interest.

references

Garlic-induced Esophagitis and Gastroenteritis: A Review of Four Cases

Gurinder S. Grewal*, Adam Amlani*
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* Corresponding author: gsgrewal@alumni.ubc.ca

Garlic, or *Allium sativum*, is a common culinary ingredient used as a natural medicine for hypertension, hyperlipidemia, cancer prevention, treatment of fungal infection, and atherosclerosis prevention. We reviewed all cases of garlic–induced esophagitis and gastroenteritis available in academic literature. A literature search using combinations of the MeSH headings “garlic”, “*Allium sativum*”, “esophagitis”, and “deglutition disorders” was conducted in the Embase and PubMed computer databases. References involving reports of esophagitis and gastroenteritis were retrieved. Additional relevant articles were found by analyzing the references provided within the retrieved articles.

Our review uncovered four published case reports of garlic–induced esophagitis, and one possible garlic–induced gastroenteritis. In three cases, the inflammation was caused by direct injury, both by mechanical and possibly caustic effects. Garlic was thought to have caused eosinophilic inflammation in the remaining two cases, both of which involved a significant atopic medical history. Given the prevalence of garlic in both culinary and therapeutic settings, we believe clinicians should be aware of its potential for gastrointestinal symptoms. Esophagitis and gastroenteritis should be on the differential as a cause of upper gastrointestinal symptoms in garlic users, especially in atopic patients. In suspect patients, thorough medical histories, endoscopy, biopsies, and cutaneous testing may all be useful and should be utilized when appropriate. Management should include avoidance of the offending agent, and supportive care. Oral corticosteroids may be useful in certain patients. Follow–up endoscopy can be considered, especially in patients who have experienced direct injury.

**abstract**

Garlic, or *Allium sativum*, is a common culinary ingredient used as a natural medicine for hypertension, hyperlipidemia, cancer prevention, treatment of fungal infection, and atherosclerosis prevention. We reviewed all cases of garlic–induced esophagitis and gastroenteritis available in academic literature. A literature search using combinations of the MeSH headings “garlic”, “*Allium sativum*”, “esophagitis”, and “deglutition disorders” was conducted in the Embase and PubMed computer databases. References involving reports of esophagitis and gastroenteritis were retrieved. Additional relevant articles were found by analyzing the references provided within the retrieved articles.

Our review uncovered four published case reports of garlic–induced esophagitis, and one possible garlic–induced gastroenteritis. In three cases, the inflammation was caused by direct injury, both by mechanical and possibly caustic effects. Garlic was thought to have caused eosinophilic inflammation in the remaining two cases, both of which involved a significant atopic medical history. Given the prevalence of garlic in both culinary and therapeutic settings, we believe clinicians should be aware of its potential for gastrointestinal symptoms. Esophagitis and gastroenteritis should be on the differential as a cause of upper gastrointestinal symptoms in garlic users, especially in atopic patients. In suspect patients, thorough medical histories, endoscopy, biopsies, and cutaneous testing may all be useful and should be utilized when appropriate. Management should include avoidance of the offending agent, and supportive care. Oral corticosteroids may be useful in certain patients. Follow–up endoscopy can be considered, especially in patients who have experienced direct injury.

**introduction**

Esophagitis refers to inflammation of the esophagus. Typical symptoms include retrosternal pain or discomfort, odynophagia, and dysphagia. Rarely, hematemesis, abdominal pain, and weight loss can occur. Etiologies include infection, gastroesophageal reflux, trauma, caustic ingestion, medications, and allergy.

Medication–induced esophagitis can occur via both systemic and direct causes. Direct mucosal injury of the esophagus may occur with prolonged contact between oral medications and the esophageal lining, causing pill–induced esophagitis. Several medications may cause pill–induced esophagitis, including NSAIDs, antibiotics, potassium chloride, and bisphosphonates. It is more frequently seen in females and patients with advanced age, diabetes, and/or ischemic heart disease.

Eosinophilic esophagitis is an atopic, IgE–mediated condition, usually occurring in response to food allergens. It is an important consideration for patients presenting with complaints of retrosternal discomfort and dysphagia, especially when unresponsive to treatments for gastroesophageal reflux disease. The most common food culprits in adults include legumes, nuts, fruits, wheat, milk, eggs, and soy. In children, the common triggers include milk, eggs, wheat, beef, soy, and chicken. Diagnosis typically requires eosinophilia of the esophageal epithelium on biopsy. Management usually involves treatment with oral corticosteroids and initiation of an elimination diet avoiding the six common allergic food triggers. Gradual stepwise reintroduction is used to identify the offending foods.

Garlic (*Allium sativum*) is a common culinary ingredient often used therapeutically as a natural medicine for hypertension, hyperlipidemia, cancer prevention, treatment of fungal infection, and atherosclerosis prevention. Aside from causing a mild blood pressure decrease in hypertensive patients, quality evidence for the remainder of the indications is currently insufficient and limited. Side effects of garlic use are usually mild and include malodorous breath and dyspepsia. Rarely, garlic can cause significant gastrointestinal problems, including gastroenteritis and esophagitis.

Herein, we review all cases of garlic–related esophagitis and gastroenteritis available in the academic literature, including both direct and allergic causes.

**methods**

A literature search using combinations of the MeSH headings “garlic”, “*Allium sativum*”, “esophagitis”, and “deglutition disorders” was conducted in the Embase and PubMed computer databases. References involving reports of esophagitis and gastroenteritis were retrieved.
Additional relevant articles were found by analyzing the references provided within the retrieved articles. Articles were then reviewed by two independent evaluators to compare and contrast each of the cases with respect to the characteristics of the patients, the identification and management strategies employed, and the eventual outcome of the case. The findings are summarized in the Results section.

**Results**

Our literature search revealed a total of four published case reports of garlic-induced esophagitis, and one possible garlic-induced gastroenteritis. Results are summarized in Table 1.

Kim et al. (2008) reported a case of a 60-year-old female presenting with severe and sustained chest pain 12 hours after consuming sliced raw fish and garlic. Esophagogastroduodenoscopy (EGD) was performed and a 2.7 x 1.5 cm piece of garlic was retrieved via forceps. Bullous necrotic changes were seen at the site of impaction. The patient was admitted for supportive care and was put on NPO (nothing by mouth) protocol. Her symptoms resolved shortly afterwards. A follow-up EGD three days after admission reviews

<table>
<thead>
<tr>
<th>Study</th>
<th>Age</th>
<th>Gender</th>
<th>Past medical history</th>
<th>History of presenting illness</th>
<th>Primary presenting symptoms</th>
<th>Identification</th>
<th>Management</th>
<th>Outcome and Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kim et al. 2008</td>
<td>60</td>
<td>F</td>
<td>None mentioned</td>
<td>Symptoms started 12 hours after eating sliced raw fish and garlic</td>
<td>Severe sustained chest pain</td>
<td>EGD</td>
<td>2.7x1.5 cm piece of garlic removed by forceps. Admitted for supportive care. NPO.</td>
<td>Cest pain improved when garlic removed. Follow-up EGD after 3 days revealed dramatic improvement, tiny whitish scarring, and grey mucosal changes at the site of impaction.</td>
</tr>
<tr>
<td>Adachi 2010</td>
<td>42</td>
<td>F</td>
<td>Pollinosis, asthma</td>
<td>None relevant</td>
<td>Diarrhea, urticaria, heartburn, peripheral eosinophilia</td>
<td>EGD, biopsy, patch testing, trial of removal of causative agents</td>
<td>Avoidance of causative agents</td>
<td>Symptoms resolved.</td>
</tr>
<tr>
<td>Ergül and Çakal 2012</td>
<td>46</td>
<td>M</td>
<td>Hypertension</td>
<td>History of swallowing garlic without water one day before symptoms occurred.</td>
<td>Acute onset odynophagia and retrosternal pain x 12 hours</td>
<td>Immediate upper endoscopy</td>
<td>Liquid diet, lansoprazole 30 mg BID and sucralfate QID.</td>
<td>Resolved in 3 days. Repeat endoscopy 4 weeks later showed no lesion.</td>
</tr>
<tr>
<td>Dogan et al. 2013</td>
<td>54</td>
<td>M</td>
<td>Hypertension</td>
<td>History of swallowing garlic with little water</td>
<td>Acute onset odynophagia and retrosternal pain x 12 hours</td>
<td>Upper endoscopy</td>
<td>Therapeutic push of garlic into stomach, liquid diet, lansoprazole 30 mg BID and sucralfate QID.</td>
<td>Resolved in 5 days. Repeat endoscopy 4 weeks later showed no lesion.</td>
</tr>
<tr>
<td>Mane et al. 2013</td>
<td>58</td>
<td>M</td>
<td>1. Allergic Rhinitis</td>
<td>&gt;15 year history of upper gastrointestinal symptoms refractory to GERD treatment. Subsequent 6 years worsening dysphagia. EGD and biopsy confirmed eosinophilic esophagitis. Patient was treated with swallowed viscous budesonide, but this was taken irregularly. Next 2 years had increased nausea, dyspepsia, dysphagia. A second EGD showed normal mucosa but repeat biopsies showed eosinophils. Referred to allergy/immunology, underwent skin prick testing.</td>
<td>Dysphagia, nausea, dyspepsia</td>
<td>EGD, biopsy, history, skin prick testing</td>
<td>Avoidance of garlic and cottonseed, regular intake of viscous budesonide 0.5 mg BID in sucralose powder between meals.</td>
<td>Marked improvement within a few weeks. After 3 months, budesonide frequency was reduced to once daily. Patient became largely asymptomatic.</td>
</tr>
</tbody>
</table>
Endoscopic investigation was crucial in the diagnostic evaluation of all cases. In addition to allowing visualization and an opportunity to obtain biopsies, endoscopy can play a key role in treatment...

...pump inhibitor, and sucralfate. Follow-up EGD in the case reported by Kim et al. (2008) was performed three days after discharge, whereas follow-up endoscopies in the cases reported by Ergül and Çakal (2012) and Dogan et al. (2013) were performed four weeks following discharge.

As suggested by Ergül and Çakal (2012), garlic may have had a caustic effect in the cases due to its acidic pH. Direct esophageal injury from mechanical trauma is another possible mechanism. Lifestyle measures, including adequate water intake and avoidance of lying supine after meals, are likely to reduce the incidence of all types of “pill–induced esophagitis”, including those caused by foods such as garlic.

When comparing the two cases of eosinophilic inflammation, both patients had a positive atopic history. EGĐ, biopsy, and cutaneous testing were diagnostically instrumental in both cases, and avoidance of garlic was a common strategy in management. Symptoms were different due to the different sites of inflammation. Elimination of typical agents via a thorough medical history seemed to play a larger role in the case reported by Mane et al. (2013), and unlike the patient reported by Adachi (2010), management included viscous budesonide and sucralfate. There was no mention of follow-up endoscopies in either case.

Although standard elimination diets, stepwise reintroduction of suspect foods, and oral corticosteroids are the typical management strategies of eosinophilic
esophagitis, sole use of these strategies would not have detected the true cause of the inflammation in the eosinophilic cases presented above. The six-food elimination diet, by design, is only diagnostically effective with respect to the six foods in the diet. It can also be a challenging treatment strategy for patients to follow. Clinicians should consider cutaneous testing in suspected cases of eosinophilic esophagitis and gastroenteritis to rule out atypical foods, such as garlic, as causes of inflammation. Cutaneous tests were paramount in diagnosing the cases presented by Adachi (2010) and Mane et al. (2013).

Endoscopic investigation was crucial in the diagnostic evaluation of all cases. In addition to allowing visualization and an opportunity to obtain biopsies, endoscopy can play a key role in treatment, as demonstrated in the case presented by Dogan et al. (2013). Furthermore, endoscopy is important in follow-up, particularly in cases involving direct injury, as it allows for evaluation of healing and treatment efficacy. We agree with the suggestion made by Mane et al. (2013) regarding a low threshold for biopsy in symptomatic patients with normal appearing mucosa, due to the possibility of an underlying eosinophilic process. This, however, should only be considered if an eosinophilic cause makes sense within the clinical context of the patient.

disclosures

The authors do not have any conflicts of interest.

references


Garlic-induced esophagitis and gastroenteritis have a small reported incidence in the academic literature. However, more than 70% of Canadians use complementary and alternative health care therapies regularly, and clinicians would benefit from broadening their differential diagnoses to include complications of these therapies.
Complementary and Alternative Medicine in the Management of Lymphomas: Prevalence, Rationale, and Contraindications

Christine D. Lukac\(^a\), BSc, David Twa\(^b\)*, BSc

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* Corresponding author: david.twa@bccancer.bc.ca

\(^a\) MPH Candidate 2016, School of Population and Public Health, Faculty of Medicine, University of British Columbia, Vancouver, BC

\(^b\) MD PhD Candidate 2021, Faculty of Medicine, University of British Columbia, and Department of Lymphoid Cancer Research (BC Cancer Agency)

abstract

In Canada, lymphomas are the fifth most prevalent cancer and the incidence of this heterogeneous group of malignancies is increasing. Though recent advances in allopathic medicine with molecularly precise therapies have improved patient survival, many lymphoma patients still succumb to their disease. Often patients also experience reduced quality of life as a result of their cancer and allopathic treatment–related side effects. In light of these outcomes, studies have reported that patients frequently use complementary and alternative medicine (CAM) to help manage their disease. As most patients elect to engage in CAM concurrently with allopathic therapy, it is necessary to consider common CAM modalities that may have outright and/or synergistically harmful side effects that limit the efficacy of allopathic therapy in treating lymphomas. Despite limited scientific evidence supporting CAM efficacy, healthcare providers should still acknowledge the reasons for why patients might choose to use CAM. Here, we examine recent findings on prevalence, rationale, and contraindications for CAM usage by lymphoma patients. Taken together, we believe this analysis may facilitate informed discussion on the disadvantages and advantages of CAM, and when it might be used to appropriately manage lymphomas and allopathic treatment–related symptoms.

introduction

Lymphoma is a type of adaptive immune cell cancer that, unlike leukemia, usually manifests as a fleshy tumour in lymphoid organs.\(^1,2\) The majority of lymphomas are derived from the B–cell lineage and can be categorized as either Hodgkin or non–Hodgkin lymphomas.\(^1,2\) In Canada, lymphomas rank fifth in prevalence with over 9,000 incident diagnoses in 2014 alone.\(^3\) As with other solid cancers, therapeutic mainstays include radiation, cytotoxic, and immune modulatory therapeutics, and stem cell transplantation.\(^2\) Of note are the latest advances in molecularly precise biological medicine (e.g. Rituxan®/rituximab) that specifically target malignant cells while sparing surrounding tissue. Although instrumental in improving overall patient survival, such allopathic therapies (alternatively and perhaps inappropriately termed conventional, Western or mainstream therapies) are incapable of successfully managing all lymphoma patients.\(^4\) Indeed, treatment–related side effects that are both immediate and long–term (e.g. secondary cancers, organ damage/failure, and opportunistic infections) are of ongoing concern.\(^2\) As a result of disease symptoms and allopathic treatment–related side effects, lymphoma patients often choose complementary and alternative medicine (CAM) to derive a perceived benefit in lymphoma management.\(^5\)

Here, we define CAM as encompassing non–allopathic supplements (including vitamins/minerals and herbs) and manual manipulative practices (acupuncture, massage and traditional medicine, among others). The medical community recognizes two methods of implementing CAM: (1) complementary therapy which involves the concurrent use of allopathic therapy and (2) alternative therapy which sees the complete replacement of allopathic therapy.\(^6\) While the vast majority of cancer patients fall into the former category, the lack of peer–reviewed, randomized control clinical trials assessing the efficacy of CAM against gold standards of care underlies the concerns of healthcare practitioners.\(^7\)

Especially concerning are the inherent toxicities of certain complementary therapies, their harmful drug synergies with allopathic therapies, and the resulting depressed efficacy of allopathic anti–cancer treatments.\(^6,12\) Furthermore, while studies cite the placebo effect and patient empowerment as potential benefits of CAM usage, these advantages must be ethically weighed against the potential harms of propagating misinformation and false hope.\(^13\) Finally, some CAM modalities remain unregulated in cost, administration, and adherence to safety standards. This may ultimately expose patients to risky and unsound healthcare practices in CAM delivery, as has been reported previously.\(^14\)

In spite of these and other concerns, CAM should still not be dismissed without critical appraisal; some patients appear to derive benefit from CAM and too little is known of CAM to rule out its place in healthcare.\(^5,11,15,16\) Between physicians and their patients, CAM therapies should be
discussed and assessed scrupulously on a case–by–case basis to determine the best comprehensive treatment plan for the management of lymphoma. To help inform such discussions and decisions, we examine three questions regarding CAM in lymphoma treatment: (1) what forms of CAM are most frequently used, (2) what are the intentions of patients when engaging in CAM, and (3) what potential contraindications exist for CAM therapies.

I. Prevalence

Large-scale studies surveying patients with several types of cancer have reported a prevalence of CAM usage as high as 80%, with the majority of such patients engaging in the complementary form of therapy administration. Among lymphoma patients, a range of 26-88% has been reported across four peer-reviewed studies, each surveying at least 50 lymphoma or lymphoma-related entities (Table I). In 1,162 cumulative cases across these studies, 76% of patients reported using some form of CAM therapy (Table I). Two studies assessing distribution of usage by sex found significantly greater usage of CAM among women than men (P < 0.0001 and P = 0.009). No surveyed study reported any significant correlation between CAM usage and lymphoma stage, although one paper found increased CAM usage associated with T- and natural killer cell–derived lymphomas (P = 0.04), both of which are known to have a more aggressive clinical course.

In assessing three major modalities of CAM therapy, vitamins/minerals (e.g., beta-carotene and selenium) were most frequently employed among 85% of patients across the surveyed studies. This was followed by manual manipulative CAM techniques (e.g., acupuncture and massage) at 62% and herbal supplements (e.g., garlic and Ginkgo biloba) at 50% (Table I). While most of the information derived from the distribution CAM usage among lymphoma patients is based on the study by Rausch Osian et al., which had the greatest sample size (N = 719), the prevalence of CAM usage is important in considering any harmful drug interactions with allopathic therapies, as discussed below.

Table 1: Usage of complementary and alternative medicine modalities in the management of lymphomas and related malignant lymphoid entities, as derived from the literature.

<table>
<thead>
<tr>
<th>Type</th>
<th>Prevalence (%)</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall usage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Herbal supplements*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin &amp; mineral supplements†</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative techniques‡</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Green tea, flaxseed, herbal teas, garlic, Echinacea, Ginkgo biloba, ginseng, saw palmetto, Aloe, parsley, St John's wort, shark cartilage, and grape seed extract; †multivitamins, calcium, vitamins A, B6, B12, C, D and E among others, folic acid, magnesium, zinc, iron, niacin, selenium and beta-carotene; ‡chiropractic, massage, relaxation, meditation, spiritual, yoga, acupuncture and therapeutic touch therapies. Homeopathic and naturopathic therapies, among others, were not considered on the basis of the studies surveyed.

Table 2: Summary of beliefs and reasoning of complementary and alternative medicine users in managing lymphoma and related malignant lymphoid entities, as derived from the literature.

<table>
<thead>
<tr>
<th>Beliefs</th>
<th>Prevalence (%)</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curative intentions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Derive a sense of control*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completely safe†</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improve allopathic therapy efficacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relief from symptoms‡</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Mental and physical; †no perceived side effects; ‡symptoms related to allopathic treatment and/or lymphoma.

II. Rationale

Based on the studies surveyed, the intentions of lymphoma patients engaging in CAM were varied. They included: a perceived reduction in side effects resulting from allopathic therapy and from the cancer itself, improving the efficacy of allopathic treatments, deriving a sense of control in managing their disease, and engaging in CAM with curative intentions (Table 2). To date, the authors are not aware of any peer-reviewed, prospective randomized control trials that have found significant association between any of the aforementioned patient intentions and any modality of CAM for the management of lymphoma. Further, studies have found...
that as many as 10% of patients believe that CAM is not associated with any toxic side effects (Table 2), in spite of literature suggesting multiple harmful activities of supplemental CAM modalities resulting either directly from their use or in synergy with allopathic drugs.

### 3. select, known contraindications

As has been discussed, a substantial proportion of lymphoma patients engage in CAM concurrently with allopathic treatments; many do so based on scientifically unsupported claims and do not acknowledge the potentially toxic and hazardous side effects (Table 2). Compared to some perceived CAM activities that are anecdotally believed to improve patient health however, several means by which CAM therapies can negatively alter clinical course have been studied and have been scientifically reproduced.

Molecularly precise therapies aside, two established allopathic lymphoma modalities are gamma radiation and anthracycline chemotherapeutics (e.g. Adriamycin®/doxorubicin). One way these therapeutics induce neoplastic cell death is through the generation of reactive oxygen species (ROS). In cellular nuclei, ROS interact with chromatin, resulting in a level and quantity of DNA damage that surpasses the threshold of DNA repair mechanisms and triggers the apoptotic cascade. Unwanted treatment–related side effects result from both the subsequent release of cancerous apoptotic cell debris and the unintentional destruction of healthy cells as a result of the imprecise nature of radiation and non–targeted chemotherapy. Although conventional therapies can help manage some side effects, lymphoma patients occasionally employ CAM supplements with antioxidant properties, in spite of limited evidence supporting their efficacy. Beyond limited efficacy, some evidence exists suggesting that CAM therapies with antioxidant properties are associated with worse patient outcomes. Studies in head and neck cancers have shown the concurrent use of allopathic therapy with the antioxidants beta–carotene and/or vitamin E was associated with more frequent cancer relapse. Although the mechanism is incompletely understood, antioxidant CAM therapies presumably counteract the activity of therapeutically–generated ROS, lessening efficacy. The means by which CAM and allopathic therapies are synergistically absorbed, metabolized, and excreted (termed pharmacokinetics), adds to the complexity in understanding these drug interactions and is an important area of ongoing research. Lessons learned from future pharmacokinetic studies can be applied paradigmatically to instances where antioxidant CAM therapies are taken concurrently with ROS–generating allopathic modalities, as is the case in lymphoma management. The most commonly employed herbal CAM supplements with antioxidant properties are listed in Table 3 for reference.

CAM supplemental therapies are also known to possess blood clot modulating and hormone signaling properties, in addition to immune modulating activities (Table 3). CAM therapies recognized as immune system modulators are of particular relevance to lymphomas. This is not only because the neoplasm is derived from immune cells but also because the surrounding tumour microenvironment is composed of a heterogeneous reactive cellular infiltrate susceptible to immune modulation. The complexity of the tumour microenvironment is not to be underestimated; paradoxically, certain tumour microenvironment gene signatures have been variably associated with both favorable and unfavorable prognoses. As such, long–term usage of CAM therapies with immune modulatory properties can produce results opposite of those historically ascribed by CAM practitioners. Prolonged use of Echinacea, for example, has been shown to reduce the number of circulating white blood cells. Furthermore, some immune modulatory CAM compounds can reduce the efficacy of lymphoma restaging, as is the case with the concurrent use of Nerium oleander and positron emission tomography. Taken together, caution should be exercised as there is little scientific data demonstrating how immune modulating CAM therapies might reshape the composition of the tumour microenvironment.

Contraindicated CAM usage is not limited to the oral supplement forms of therapy; CAM techniques, such as acupuncture, can also put patients at risk of unfavorable outcomes. Characteristically, lymphoma patients have a depressed immune system resulting from a combination of allopathic treatment and the population of dysfunctional immune cells that constitute the lymphoma. The few functional immune cells that remain are often insufficient in number and inactive in biological function to respond to infectious agents potentially introduced into the body through acupuncture. Additionally, as noted in the Canadian Cancer Society patient handbook for complementary therapies, massage therapy may be contraindicated for late stage lymphoma and multiple myeloma patients who have cancer infiltrations and lesions that weaken the bone architecture.

### Table 3: Summary of known activities of historically the five most commonly employed oral herbal complementary and alternative therapies in North America, as described by Sparreboom et al. (5)

<table>
<thead>
<tr>
<th>Supplement</th>
<th>Antioxidant</th>
<th>Immune modulator</th>
<th>Blood clotting modulator*</th>
<th>Hormonal properties</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Echinacea</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>(12, 31, 32)</td>
</tr>
<tr>
<td>Garlic</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>(6, 12, 33)</td>
</tr>
<tr>
<td>Gingko biloba</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td>(5, 6, 31)</td>
</tr>
<tr>
<td>Ginseng</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>(6, 12, 31)</td>
</tr>
<tr>
<td>Soy</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
<td>(12)</td>
</tr>
</tbody>
</table>

*Includes interactions with allopathic drugs affecting blood clotting (e.g. warfarin).
conclusion

Based on the literature, it has been observed that as many as 88% of lymphoma patients engage in some form of CAM therapy, the most common being vitamin/mineral supplements. Most patients employing CAM do so concurrently with allopathic treatments, although the rationale for employing CAM therapy is highly varied. Moreover, up to 10% of patients do not recognize that CAM therapies may have side effects that could impact their clinical course. In particular, CAM therapies with antioxidant and immune modulatory properties have the potential to negatively interfere with allopathic treatments. As little is understood of the activities and potential contraindications of CAM therapies in the context of lymphoid cancer, these treatments should be assessed on an informed and unbiased case–by-case basis. In so doing, the primary focus can remain on the well–being of the patient with the concurrent development of a safe, agreeable, and efficacious lymphoma management plan that is established on sound scientific principles and clinical practice.

disclosures

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references

Mindfulness: What It Is and How It Is Impacting Healthcare

Matias P. Raski, BSc

Citation info: UBCMJ. 2015: 7.1 (56-59)
° Corresponding author: mraski@sfu.ca
α Departments of Psychology and Biomedical Physiology and Kinesiology, Simon Fraser University, Burnaby, BC

abstract

The following is a review of literature concerning the place of mindfulness, a non-judging present-moment awareness, and techniques by which to invoke it, in Canadian healthcare. Central to the discussion are the effects of mindfulness on personal and interpersonal well-being. A recent surge of research has found mindfulness to positively impact a wide range of measures of personal health including stress, anxiety, affect, and healthy lifestyle choices. At present, mindfulness-based interventions have been confirmed effective for the treatment of chronic pain, psoriasis, and a number of psychiatric illnesses, and are possibly helpful for the prevention of cognitive decline. Mindfulness also presents benefits to interpersonal relationships by promoting empathy, compassion and attentiveness reflected in the enhanced patient-centeredness with which mindful physicians conduct their clinical practice. As such, mindfulness training among healthcare providers is advocated for the improvement of quality of care as well as a means to mitigate work-related stress and burnout. The underlying mechanisms of the effects of mindfulness are also discussed, with emphasis on present-moment attentiveness and a disempowerment of one’s maladaptive cognitions allowing the individual to act with intention and care rather than out of habit and impulse. Given the potential for mindfulness to promote health and enrich the practice of medicine, its increased utilization among patients, physicians, and the population at large is encouraged.

introduction

Mindfulness is a concept derived from Buddhist tradition. It is a central component of an ancient school of thought concerning human suffering and ways to bring about its cessation. It is characterized by Jon Kabat-Zinn—a foremost pioneer in introducing mindfulness to medicine—as a nonjudgmental, curious, and self-compassionate awareness of one’s moment-to-moment experience. It is an active and deliberate regulation of one’s attention so as to focus it on the many cognitive events—sensations, thoughts, emotions, and so on—that occur within the field of consciousness at any given moment. Further, it is to manifest a nonjudgmental orientation toward these cognitions, treating them not as things to be liked and disliked, or pursued and resisted, but rather as objects of observation to simply acknowledge and accept as they are.

In recent decades, research interest in mindfulness has grown. While mindfulness practices are diverse—yoga, tai chi, and various prayer and chanting exercises present a few examples—meditation has been the primary object of our scientific study. Mindfulness meditation is the deliberate evocation of mindfulness, usually in a state of physical stillness, and was first introduced to the Western medical lens with the establishment of Mindfulness-Based Stress Reduction (MBSR) therapy in American clinics and hospitals in the 1980s. MBSR is a secular therapy that seeks to develop participants’ mindfulness skills through meditation practice. MBSR’s success in the management of chronic pain spurred the development of a considerable body of literature exploring the impact of mindfulness training on human psychology and physiology.

the health benefits of mindfulness

This research has confirmed millennia-old reports of mindfulness as a powerful promoter of personal and interpersonal health. First, it is now generally accepted that mindfulness training can promote long-standing increases in positive affect and reductions in anxiety, negative affect, emotional reactivity, and stress. Second, it is reported to increase empathy and compassion and promote a sense of connectedness with others. Third, it has emerged as a predictor of various health-determining lifestyle choices, including diet, exercise, and substance use. Fourth, the act of meditation itself is associated with increased parasympathetic tone and related decreases in heart rate, blood pressure, blood cortisol, breathing rate, skin conductance, and muscle tension. Finally, a number of mindfulness training studies in patient populations report enhanced immune function as measured by cytokine expression, leukocyte quantities, and antibody titers in response to vaccination. Together, these findings suggest not only a capacity of mindfulness to promote subjective well-being, but also a preventive effect on stress- and hypertension-mediated pathologies, as well as the possibility of enhanced immunoprotection from viral and bacterial diseases.
principles and mechanisms of mindfulness

How is mindfulness doing all of this? The cognitive and neurobiological mechanisms underlying the benefits of mindfulness training are undoubtedly complex, and while a number of compelling models have been proposed (for review, see Höfzel et al.20), our understanding of these mechanisms remains rudimentary. Even so, because mindfulness is a conscious psychological process,2 we stand to learn a great deal about it by reflecting upon the conscious experiences of mindful people. In one account of personal reflection, Krasner24 writes:

“What mindfulness-based interventions ask of the participants ... is to consciously shift [the] locus of control internally, acknowledge and accept whatever challenges arise, and apply wise attention to the challenges without judgment in the present moment. It is through the cultivation of this awakened state that one begins to see the perceptual distortions of unexamined thoughts, feelings, and sensations. In doing so, one recognizes how these distortions drive the engine of behavior and choices and how this results in movement toward states of greater disease.”

A number of interesting changes are thought to occur with this sort of insight. One such change, as Krasner alludes to, is that maladaptive cognitions tend to lose their power in guiding behaviour. Brewer et al.25 illustrate this notion with the example of fictional Joe Smoker, who, upon experiencing a craving for a cigarette, might bring mindful awareness to the sensations and perceptions that comprise his craving and just observe them from moment to moment. The craving itself and any judgments surrounding it become merely objects of curious and wide-eyed observation, and in this process lose their salience as driving forces for behaviour.

A similar principle applies not only to overt behaviour, but to our maladaptive cognitions themselves. As Crane et al.26 explain, becoming mindful represents a paradigm shift in the ‘mode of mind’ in which we operate: we disengage from a ruminative avoidant mode of processing and engage with an acceptance-based, approach-oriented mode anchored in present-moment awareness. In this mode we are better able to notice and reflect upon our thought processes, and, to an extent, deliberately let go of those we find maladaptive.

In considering the interpersonal effects of mindfulness, Bihari and Mullan27 come to important insights in their 2014 qualitative study of the effects of mindfulness training on participants’ relationships. These authors suggest that mindfulness incites an enhanced awareness of one’s tendencies to react automatically to internal and external cues in interpersonal situations. This allows one to act less out of habit and impulse, and more out of conscious purpose. They also report an enhanced ability to engage in constructive, fruitful arguments and to “be with” another without submitting to urges to “fix” or avoid that person. These findings indicate a capacity of mindfulness to promote constructive and fulfilling interpersonal interactions and help avoid destructive and taxing ones.

MBSR’s success in the management of chronic pain spurred the development of a considerable body of literature exploring the impact of mindfulness training on human psychology and physiology.

MBSR’s success in the management of chronic pain spurred the development of a considerable body of literature exploring the impact of mindfulness training on human psychology and physiology.
physicians at a given time\textsuperscript{38} and by up to 60\% as having been experienced at some point in their careers.\textsuperscript{17, 39} Burnout is related to a less patient-centered approach to care,\textsuperscript{33} reduced empathy and compassion,\textsuperscript{36} and leads to increased medical errors.\textsuperscript{36} As a result, burnout influences patients’ recovery times,\textsuperscript{14} compliance with therapies, confidence in their physicians,\textsuperscript{36} and overall satisfaction with their care.\textsuperscript{36}

Fortney et al\textsuperscript{40} suggest that mindfulness presents a particularly suitable and appealing option for physicians as a means to deal with distress in that it directly addresses meaning in life and work but is entirely secular and firmly founded in empiricism. Indeed, a growing body of evidence\textsuperscript{40-43} suggests that mindfulness training is effective in reducing indicators of burnout, depression, anxiety, and stress and improving indicators of well-being, vigor, empathy, and stress-resilience among physicians, other health care professionals, and medical students. Although this field of research is young and much of the data is only quasi-experimental,\textsuperscript{44} these findings indicate the promise of mindfulness training as a means to mitigate distress among healthcare providers and improve quality of care.

How might we understand these changes in healthcare providers’ well-being and proficiency? In his reflections upon mindful physicians, Epstein\textsuperscript{45} suggests that the critical self-reflection essential to mindfulness enables physicians to listen attentively and presently to their patients’ distress; recognize their own errors; make evidence-based decisions; and act with technical competence, insight, and compassion. Beach et al\textsuperscript{42} find that mindfulness among physicians is associated with patient-centered communication and an increased likelihood to consider a range of possible explanations in stressful situations. Further, Beach et al report an enhanced approach attitude among mindful physicians – a capacity to respond consciously and engage with distressing situations rather than react automatically and withdraw from them. Together, these considerations lend us further indication that mindfulness may have an important role to play in promoting an effective, fulfilling, and human-centered practice of medicine.

limitations of mindfulness training

Although most studies have shown encouraging results, mindfulness training sometimes fails to help participants and can potentially even do harm.\textsuperscript{46} Reported adverse responses include panic attacks and intensified perceptions of pain, particularly among new practitioners.\textsuperscript{46} Some authors\textsuperscript{46, 47} understand these responses as a result of encountering and attending – perhaps more fully than ever before – to certain burdensome mental events (e.g., traumatic memories or pain).\textsuperscript{46} In addition, while no specific populations for whom mindfulness training is contraindicated have yet been uncovered, case reports of manic and psychotic episodes precipitated by meditation advise caution for certain psychiatric populations.\textsuperscript{48}

Crane et al\textsuperscript{26} emphasize teacher competence as a critical factor in allowing participants to respond adaptively to the arsial of unpleasant perceptions. By offering strategies for open acceptance of perceptions in real time and by themselves embodying the practice,\textsuperscript{46} teachers may allow otherwise aversive experiences to become intense but valuable learning opportunities. Dobkin et al\textsuperscript{46} also offer a set of guidelines for reducing the risks and maximizing the benefits of mindfulness training. These include pre-screening for psychiatric problems and ‘priming’ participants before training begins by informing them of potential challenges and ways to approach disconcerting perceptions if and when they arise.

conclusion

The therapeutic applications of mindfulness are considerable and its impact on clinical practice itself appears to be profound. Indeed, several commentators\textsuperscript{4, 14, 23, 45, 49} characterize mindfulness as inciting nothing short of a revolution in the way we conduct our mental lives both within the clinic and without. By continuing to encourage and teach mindfulness meditation and expand mindfulness training programs, we stand to enhance the health of patients and healthcare professionals alike, enrich the practice of medicine, and empower people to navigate their lives with skill, wisdom, and meaning. Given these findings, the continued investigation and realization of potential roles for mindfulness in healthcare is strongly encouraged.

disclosures

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The Intersection of Biomedicine and Traditional Medicine in the Peruvian Amazon

Melanie van Soeren* BSc MD; Melissa Aragon† BA MA MD

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* Family Medicine PGY1, Faculty of Medicine, University of British Columbia, Vancouver, BC
† Family Medicine PGY1, Faculty of Medicine, Memorial University, St. John’s, NL

abstract

In Northeastern Peru, in the Amazonian district of Loreto, one million Peruvians, mostly Indigenous and Mestizo, live isolated from the rest of the rapidly developing country. This region has a rich history of traditional medicine, and with financial, geographical, and cultural barriers to biomedical care, there exists a unique interaction between allopathic and alternative treatment models. During a clinical elective in the village of Santa Clotilde, in a hospital serving a population of twenty thousand people, two University of British Columbia medical students encountered this integrative system and witnessed health-seeking behaviours that at times were positive, and at others led to tragedy.

P eru’s northeastern province, Loreto, is geographically remote and in many ways disconnected from the rest of the country. The population density here is only 2.4 people per square kilometre. In this region, deep within the Amazon, on the shore of the Napo River, lies the village of Santa Clotilde. The Centro de Salud de Santa Clotilde (CSSC) is a health center that serves the population of twenty thousand living along the Napo River. The CSSC provides inpatient and outpatient medical care, dental, obstetrical and basic surgical services, and coordinates public health campaigns up- and down-river. In February of 2015, two fourth-year medical students completed a clinical elective at the CSSC, following in the footsteps of many other UBC medical students who for years have been making the journey to the Amazon to enrich their tropical medicine knowledge, practice their medical Spanish, and experience the provision of medical care in a low-resource setting.

Peru is rapidly developing, but the improving healthcare system has yet to reach the remote areas where resources such as essential medicines are in short supply. Infections, primarily diarrheal disease, parasites, malaria, and tuberculosis, as well as trauma are the major causes of morbidity and mortality in the region. It is on this frontier, where access to allopathic medicine is limited, that traditional forms of medicine intersect with biomedicine.

One Santa Clotilde physician estimated that 90% of patients sought care by a local healer prior to presenting at the health centre. Consistent with this, a healthcare access study conducted in the region found that 80% of the study population had consulted a shaman in the previous year, while only 43% of the population said they had access to a Western physician. Furthermore, the majority of the study participants stated they believe traditional medicine to be better than or equal to Western medicine. However, there is some disagreement in the literature, as a recent study in the region by Williamson et al. found that the local population “preferred modern over traditional medicine, predominantly because of mistrust or lack of belief in traditional medicine.” With small sample sizes and selection bias, these studies have flaws, and better quality research should be conducted to further understand healthcare-seeking behaviours in this region.

Vegetalismo, the most common form of traditional medicine encountered in Santa Clotilde, is a syncretic healing tradition that borrows from both indigenous and Catholic beliefs. It is mainly practiced by members of the Mestizo population. Vegetalistas, those who practice Vegetalismo, gain their healing powers from the spirits of forest plants. They use diverse plant species as treatments for various ailments and make teas that purge “impurities.” There is pharmaceutical activity in many of these plants, and in one study 23 of 31 samples of plants used in traditional medicine had antibiotic activity. They also perform healing ceremonies involving chupando (sucking) and the use of tobacco smoke.

While access to Vegetalistas is easy for the local population, access to Western medicine is more complicated. Thus, we wondered how people made decisions about how and when to access allopathic medical care. Factors we perceived as being important in preventing access to Western medicine were cost, distance, time, and accessibility. These were recurring themes in the stories we heard from patients and their families, and are consistent with the findings of the healthcare access study. For example, the journey for families living up- or down-river can be up to eight hours by peke–peke, a canoe with an outboard motor. Families need to have access to a boat, gasoline, time, good weather, and stable enough health to manage the...
journey. Layer onto that potential mistrust and disbelief that Western treatments will work and occasional dissatisfaction with care due to long wait times and lack of resources, and it is shockingly how many patients actually make it to Santa Clotilde.

Two patient encounters in Santa Clotilde illustrate this intersection of Western and traditional medicine—Roberto and Lette. Both patients’ stories provide a commentary on health-seeking behaviour in the remote Amazon. Roberto was a 50-year-old man with cirrhosis and hepatocellular carcinoma, a common presentation in this region due to the paucity of immunization against Hepatitis B. In planning for his care, it became evident that while we understood him to be palliative and were hoping only to limit his suffering, he was hoping for a cure. We managed his symptoms as best we could, although without access to morphine adequate pain control was challenging. He chose to pursue care with a local healer simultaneously, a choice that some of the hospital staff disapproved of and attempted to restrict. Depending on a patient’s illness, this health-seeking behaviour may be deemed acceptable by the hospital staff; at other times, however, these actions are viewed as irresponsible and ignorant, and are a major source of discord. If the patient’s prognosis is particularly grave, nursing staff are critical and create more barriers to the patient utilizing traditional medicine. Roberto ultimately discontinued his treatment at the health centre to pursue what he believed to be curative treatment with the shaman. In conversation he expressed that the traditional practices brought him hope and made him feel supported. He died several days after leaving our care. Lette presented to CSSC one afternoon. Her husband gave a brief history: the 34-year-old woman had been well until the day before, but had started to complain of a headache and chills that morning. She subsequently became obtunded. Physical exam revealed multiple patches consistent with purpura across her chest and back. Immediately a hemorrhagic fever or meningococcemia topped our differential.

As the nursing staff gained IV access, we quickly shared our attending the concern regarding the purpura. The attending turned to the husband and asked: “Fue al vegetalista? Chupando?” (Did she go to the traditional healer? Sucking?). The husband answered “Ayer” (yesterday). Our attending turned to us and explained, “it’s not purpura, she went to a traditional healer yesterday who did chupando, sucking to try and remove the sickness. They use their mouth on the skin.” Peripheral blood smears later revealed that Lette had Plasmodium falciparum malaria. With appropriate anti-malarials she made a full recovery. Lette initially chose to attend the traditional healer over the health center due to her strong belief in traditional medicine, and,logistically, due to the healer’s close proximity and the minimal resources involved in visiting him.

The cases of Roberto and Lette highlight the intersection of traditional healing practices with allopathic medicine. Both patients chose, at different times in their illnesses, to pursue different forms of treatment. Neither patient overtly viewed the forms of medicine as competing, but rather, employed them depending on a variety of factors including immediate needs, cost, distance, and accessibility. Roberto initially presented to the health centre, but, in the face of his terminal illness, turned to the local shaman when biomedicine could not meet his needs. Lette presented to the health centre after her conditioned worsened, however, her initial consult had been to a Vegetalista within her community.

This brief discussion of the intersection of allopathic and traditional medicine in the Peruvian Amazon invokes more questions than answers. What is clear is that traditional and allopathic medicine should not be seen as dichotomous, particularly due to the widespread use of and belief in traditional medicine. It is only through understanding the cultural influences and logistical barriers that access to healthcare can be improved. There is need for improved understanding and trust—building between traditional healers and allopathic clinicians. Further, health education and increased availability of both the evidence-based treatments and those that fall within the patient’s particular belief system are imperative. The World Health Organization’s Traditional Medicine Strategy provides an approach by which this may be accomplished. This approach encourages allopathic and traditional medicine practitioners to learn about each other’s methods and scope of practice. It also calls for improved communication between patients and allopathic health practitioners regarding traditional medicine and shared care models.

disclosures

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references

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