




Exploring the Use of Complementary and Alternative Medicine in Cancer Patients

Integrative Cancer Therapies
Volume 18: 1–9
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DOI: 10.1177/1534735419846986
journals.sagepub.com/home/ict


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Abstract

In Australia, it is estimated that around 17% to 87% of cancer patients have used one form of complementary therapy during their cancer treatment. There are numerous reasons and contributing factors for cancer patients to consider using complementary and alternative medicine (CAM). CAM information and products are readily available. However, the level of evidence to support the benefits of use in the cancer setting is limited, and the associated adverse effects and interactions with conventional medicine may not be fully studied. Besides, not all health professionals favor the concept of integrative health approaches, or have the confidence in dealing with CAM due to a lack of knowledge and standardization of practices. A thematic review of the literature was performed on the main contributing factors to cancer patients' use of CAM, as well as the current issues that may be encountered by the patients and health professionals.

Keywords

complementary and alternative medicine, cancer, contributing factors, gender differences, disease-related factors, socioeconomic factors, cultural-related factors

Submitted Date: 6 November 2018; Revised Date: 17 March 2019; Acceptance Date: 22 March 2019

Introduction

An upward trend in the use of complementary and alternative medicine (CAM) has been recognized globally as a phenomenon in the general population¹⁻⁷ and among specific groups such as the cancer population.⁸⁻¹¹ In 2005 in Australia, a national population-based study showed that around 68.9% of the general population had used at least one form of CAM in the previous 12 months for health enhancement, disease prevention, and as a nutritional supplement.¹

Australia is a country that places great value on health and well-being.¹² In 2016-2017, \$69 billion was spent on hospitals and \$62 billion was dedicated to primary health care.¹² However, expenditure on personal activities not directly related to maintaining or improving personal health, such as the taking of vitamins and minerals, herbal, and other complementary medicines, is excluded.¹² Although the figures quoted do not precisely indicate the level of individual expenditure on CAM, the increase of around 7% in growth over the period of 2006/2007 to 2016/2017 aligns with the expected increase in revenue reported by the CAM industry.¹²

This article aims to explore the scope of evidence on factors that may influence the decisions of cancer patient with regard to CAM uptake in Australia. The term CAM

used in this article refers to the use of products that have the potential to contain biologically active compounds (eg, products for oral/systemic use), rather than more general therapies (eg, exercise), given the potential interactions that CAM may have with conventional cancer treatments when used concurrently.

Methods

This narrative review study was performed by evaluating articles using the electronic databases Google Scholar, Scopus, and PubMed. The search terms “Australia,” “cancer,” “complementary and alternative medicine,” “attitudes and belief,” “gender,” “contributing factors,” and “health literacy” were used to provide insight into cancer patients’

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CAM use from different perspectives. The retrieved articles were reviewed and considered if they were relevant, peer-reviewed, full-text, and English.

Prevalence of CAM Use Among the General and Cancer Population

In Australia, it is estimated that around 17% to 87% of cancer patients have used at least one form of complementary therapy during their cancer treatment.¹³ While the disparity in findings on cancer patients' CAM use is primarily due to differences in study designs and diverse cancer population sampling,^{14,15} a lack of universally recognized terminology^{13,14,16,17} and patients' willingness to disclose their use also play a role.^{18,19}

The terms "conventional medicine," "biomedicine," or "allopathic," "mainstream," "orthodox," and "Western medicine" are used interchangeably.²⁰ These conventional treatments are based on normative scientific examination of efficacy and safety, together with recognized levels of evidence before they are applied in clinical practice.^{21,22} This model is regarded in the developed world as the key to optimization of patient management.²³

Unlike conventional treatment, "complementary and alternative medicine" cannot be distinctly defined. It is broadly used to describe any health care practice that deviates from the fundamental principles of medicine instilled from established institutions.²⁴ It also varies between countries, cultures, and individuals due to different cultural and spiritual values.²² In some cases, effectiveness of treatment may even be based on anecdotal evidence, misperception, biased opinions, and unproven claims.²¹ Where an unconventional practice is used along with conventional medicine, it is considered as "complementary"; where an unconventional practice is used to replace conventional medicine, it is considered as "alternative."^{13,25}

Early studies highlighted that general patients' considerations of CAM were based on personal preferences, perception of poorer health, and distrust of conventional treatment due to adverse effects or unmet personal needs.^{26,27} Some of these themes are recurring to date and found to be consistent not only across Western countries²⁸⁻³⁰ but also non-Western countries.³¹⁻³³

The predicted incidence of all cancers combined in 2018 was over 140 000 new cases in Australia,³⁴ and a substantial increase in CAM use nationally was identified in 2010 with cancer patients' CAM use around 65%.³⁵ This combination may be significant to patients' concurrent use of medications and appropriateness of treatment management.

Contributing Factors for Patients' CAM Use

Most cancer patients are aware of the importance of adhering to conventional treatment.^{19,36,37} However, making

decisions on treatment options may still be challenging due to the physical and emotional distress associated with the diagnosis and the seemingly limited treatment options^{26,38,39} in the context of debilitating adverse effects from treatment⁴⁰ and the lack of substantial survival benefits in advanced cancers.⁴¹ Decisions related to CAM use is a complex issue and may be influenced by a myriad of reasons such as attitudes and beliefs,^{42,43} gender,⁴⁴ disease states,¹¹ socioeconomic status,⁴⁴ cultural backgrounds,⁴⁴ health literacy,⁴⁵ and even differences among localities.⁴⁶

Attitudes and Beliefs

The motivations of CAM use in cancer patients share some similarities with other chronic disease sufferers such as self-perceived ill health² and the desire of achieving holistic well-being and optimizing therapeutic benefits with conventional treatment.⁴⁷ However, reasons for cancer patients' CAM use also extend to prolonging life, minimizing cancer symptoms or adverse effects from treatment, and enhancing general well-being,¹¹ particularly in those with more noticeable declining health within a period of weeks or months.⁴⁸ Some cancer patients believe that CAM provides a level of health benefit despite the lack of supporting scientific evidence,³⁵ or an inability to identify exact benefits from use.⁴⁹

It is also possible that the media plays a part in planting ideas in people's mind. Many Australians learn about CAM from the media.⁵⁰ Topics targeting females, personal anecdotes on CAM and cancer, and perhaps misleading CAM information may be used to capture attention.⁵¹ Some popular Australian women's magazines portray CAM as safe and as health enhancers.⁵⁰ The prevalence of the unverified stories and false claims related to CAM could easily mislead vulnerable individuals into making inappropriate decisions and causing potential drug interactions with their prescribed conventional treatment.⁵¹

Gender Differences

Females. Generally, females have better health than males, lower mortality rates, and are more open to utilization of health services even when their biological differences are considered.⁵²⁻⁵⁵ Gender-related health seeking behaviors have been studied for decades.⁵³ Early explanations to justify such behavioral differences between genders arise from traditional female roles and marital and employment status.⁵³ As noted, females who are married, employed, and have young children were less likely to report morbidity.⁵³ Interestingly, contemporary CAM users appear to share similar attributes as they are mostly younger (under 50 years), with tertiary education qualifications and earning higher incomes.⁵⁶⁻⁶⁰

An Australian longitudinal study found that female CAM users were evaluated as more emotionally vulnerable and experiencing a higher level of distress than nonusers.⁶¹

Although the CAM users in the study showed a decrease in perceived stress and depression over time, their actual health-related quality of life remained constant.⁶¹ While the theoretical foundation of CAM use in female patients and level of distress may be linked, any objective and self-perceived benefits in managing negative emotions cannot be verified.^{61,62} In another large Australian study, investigating the profile of women who consulted alternative health practitioners, female CAM users were more likely than nonusers to report ill health and were also found to have higher access to conventional health services than nonusers.⁶²

Female patients' CAM use has also correlated with a form of behavior that seeks to address personal distress caused by unresolved health issues.⁶³ Such behavior is perceived more broadly as taking a confronting, supportive, and optimistic approach in managing their personal health⁴⁷ through purposeful selection of treatments to best suit their needs.⁶² These strategies are also consistent with the dynamic nature of modern society, which supports women's independence and personal transformation through self-reflection and self-discovery.⁶⁴

Males. Males have been shown to hold different views on health.⁶⁵ When compared with females, males are less likely to seek help from health professionals when they are unwell⁶⁶ and less likely to report distress and psychosocial-related issues.⁶⁷ Hence, if CAM use is associated with a stronger desire for personal control,^{9,68,69} this may provide insight into why more CAM use can be found among men suffering a high burden of health-related symptoms (e.g. cancer).^{9,70} Alternatively, a reluctance to disclose their need for help may also be an attempt to minimize distress to their families.⁹

Perlman et al argue that the discrepancies in CAM behavior between genders may actually emerge from inconsistencies in the definition of CAM that have been put forward in many studies.⁷¹ Where the definition of CAM remains broad, females have a higher tendency (1.7 times more) than males to instigate CAM therapy following a cancer diagnosis.⁷¹ However, once the CAM modalities were segregated, the utilization of CAM is mostly comparable between males and females in relation to commencing special diets, movement/physical therapy, spirituality, or dietary supplements after diagnosis.⁷¹ Similar findings were noted by another study, which showed CAM use in male patients was common across all cancer types, from solid tumors to hematological-related malignancies.⁷² This further emphasized the importance of obtaining specific information on patients' CAM use rather than making presumptions on use based on gender difference.

Disease-Related Factors

It is difficult to provide meaningful comparisons of CAM use between patients in cancer treatment.⁷³⁻⁷⁶ A patient's decision

on CAM usage can occur at any stage of their disease and is aligned strongly to individual goals and desires. This is demonstrated in a study investigating the initiation of CAM following cancer diagnosis.⁷⁷ From the 604 patients involved, 327 (54%) patients commenced a median of 2 CAM approaches per patient (range 1-6).⁷⁷ The CAM patients were also more likely than the nonusers to have a previous history of surgical interventions, experience with chemotherapy, and to have participated in clinical trials.⁷⁷ These findings were consistent with previous studies where CAM users often claimed to have poor health, self-perceived low quality of life,⁷⁸ and long-term suffering from fatigue and anxiety that were not alleviated by conventional treatment.^{37,56,57,61}

Weeks et al proposed a decision-making model to explain patient behavior in relation to CAM use, which can be divided into 3 phases: early, mid, and late.⁷⁹ The early phase of CAM decision-making commences at diagnosis of cancer or disease progression⁷⁹ to explore alternatives beyond conventional therapy and adapt to new circumstances.^{15,79-82} The subsequent transition to the mid phase reinforces the establishment of a tailored CAM regimen based on one's belief, needs, and unique experiences.⁷⁹ The late phase of decision-making begins when patients transform to either survivorship or palliative care.⁷⁹ The aims of CAM use during this phase extend from overcoming negative emotions (e.g. a sense of loss, abandonment from the service, accepting their own mortality) to enhancing positive emotions (e.g. maintaining health, prolonging life).⁷⁹

Despite the conceptual framework of Weeks et al, precise dynamic and kinetic interactions between CAM and conventional treatment are unclear with regard to the impact of CAM on conventional treatment and one's treatment process.^{37,83-85} It is particularly concerning that some cancer patients consider delaying their curative treatment to pursue CAM^{86,87} due to fear of adverse effects from conventional treatment,⁸⁷ and others feel responsible for their inability to continue CAM due to financial and practical barriers such as time and energy.⁸⁸

Socioeconomic Factors

It is evident that there are strong links between CAM use and socioeconomic factors⁸⁹⁻⁹¹ and that health outcomes are determined by personal characteristics (e.g., psychological, genetic, cultural, income, education level, and lifestyle) and external factors (e.g. physical environment, accessibility to health services).⁹² These factors shape decisions on healthy lifestyle choices.^{93,94}

CAM users are generally health conscious people and prefer to take on a proactive approach to prevent ill health.^{95,96} Some CAM users also believe that one's behaviors or lifestyle could contribute to a cancer diagnosis.⁹⁵ Hence, it is not surprising to find CAM use is more prevalent among the better-educated cohorts.^{27,29,59,95,97,98}

Presumably, the level of education has a positive association with health.⁹⁹ It is proposed that this is because highly educated people are more capable of learning, thinking, reasoning, and solving problems compared with the less educated people.⁹⁹ However, level of education does not necessarily preclude an individual's struggle to understand accustomed vocabulary and concepts found in health-related material or instructions.¹⁰⁰

If a portion of the well-educated do not fully understand health-related information, some of the less educated population may even pose a bigger challenge in medication management. Inappropriate use of CAM due to misinformation may cause potential drug interactions, adverse outcomes, and suboptimal health management.⁸⁴ Some patients may also be more easily satisfied with the information obtained from social communications or word-of-mouth recommendations,¹⁰¹ irrespective of the robustness and evidence. Assurance of better health may be enticing to someone who is unwell and logical thinking and reasoning might succumb to false hope at these moments.¹⁰²

Cultural-Related Factors

Cultural diversity plays a role in the CAM choices of cancer patients.^{96,101} For example, Chinese patients are more prone to using herbal medicines, Latinos prefer dietary therapies and spiritual healing, African Americans often use spiritual healing, and Caucasians favor using a variety of methods ranging from physical, dietary to massage, and acupuncture.⁹⁶

Differences in cultural beliefs have been found to have a higher level of impact on individual health information seeking behavior than level of education¹⁰¹ and willingness to disclose CAM use to health professionals.¹⁰³ For instance, Caucasian patients prefer unbiased, scientific information from more reputable sources (e.g. medical journals or research institutions).¹⁰¹ Japanese patients are more attracted to information from the media and commercial sources (e.g. television, newspaper, CAM providers), and non-Japanese Asians and Pacific Islanders have been found to favor information from other people (e.g. doctors, social groups, or other cancer patients).¹⁰¹

Health Literacy

Health literacy is defined by the World Health Organization as "the cognitive and social skills, which determine the motivation and ability of individuals to gain access to, understand, and use information in ways, which promote and maintain good health."¹⁰⁴ A population-based study published in 2009 found around a quarter of the Australian population may have unsatisfactory health literacy.¹⁰⁵ In 2014, it was determined that approximately 60% of adult Australians have low health literacy.¹⁰⁶ This translates into a large proportion of the population that may actually

struggle, at various levels, to make health-related choices or express opinions effectively.¹⁰⁶

Although self-health management such as self-initiated CAM use or other medications may be perceived as self-care, or an aspect of health improvement from the patient point of view,¹⁰⁷⁻¹⁰⁹ unfavorable effects caused by concurrent use of CAM and conventional therapies may be overlooked, especially when robust research is lacking to inform health providers and patients to ensure judicious use of CAM.¹¹⁰⁻¹¹⁴ Furthermore, the CAM included in the clinical guidelines may not be exhaustive¹¹⁵ or of varying quality.^{116,117}

This is of concern given that the sources of CAM information are generally family/friends,¹¹⁸ CAM practitioners, and health food shops.¹¹⁹ Potential issues related to interactions between CAM and conventional treatment³⁵ and a patient's thorough medical history/comorbidities may not be given due consideration. Moreover, CAM information is also available from discussion forums or seminars organized by companies focused on selling health or CAM products.¹¹⁴ Information provided from these settings may potentially be biased, misleading, and driven by the profit imperative.¹¹⁴

Location Differences

Studies have showed that the prevalence of CAM use is comparable in nonurban and urban localities in Australia.^{46,98,120} Interestingly, the CAM modalities preferred by nonurban residents are more associated with manual therapies such as chiropractic or massage service compared with those residing in urban areas.^{2,46} However, the preferred CAM modalities are also dependent on the characteristics of the townships and the businesses involved such as farming, tourism, or agriculture and forestry.⁴⁶

Current Issues Related to the CAM Landscape

Apart from the Internet, health food stores, or other alternative practices, the gradual shift of retail pharmacies from a patient- to business-focused model has further compounded matters.^{121,122} This led to an agreement between Australian pharmacy owners and a private CAM company on the upselling CAM with conventional medicines that attracted strong criticism.¹²² While some questioned the ethics of retail pharmacies in adopting an overt profit-making strategy, others defended the approach as merely an opportunity to promote patient health.¹²²

CAM is not entirely natural and safe in all cases.¹²³ The objective benefits of CAM may not be well established in relation to their cost-effectiveness, survival benefits, and quality of life in the cancer setting.¹²⁴ Despite an abundance of studies on CAM, a portion of the research funding may have been contributed by the complementary medicine

industry (36.6%) as opposed to independent government-funded research councils.¹²⁵ For instance, popular herbs such as St John's wort and products containing kava kava are easily accessible for symptoms related to depression and anxiety.¹²³ However, St John's wort may reduce the effects of certain anticancer treatment, whereas kava kava may cause liver impairment if not used appropriately.¹²³ Alternatively, high doses of vitamin C may be administered intravenously at alternative practices as an anticancer agent, but survival benefit and safety data are lacking either as a single agent¹²⁶ or when used concomitantly with conventional treatment.¹²⁷

Despite this, not all health professionals are confident in dealing with CAM due to a lack of knowledge in seeking and evaluating CAM-related information.¹²⁸ Some health providers may not fully favor the concept of integrative health approaches given their contrasting views on CAM.¹²⁹ These ongoing CAM issues, expressed by health professionals, partly stem from a lack of regulation and standardization of CAM practitioners and their practice standards as well as the safety and efficacy of the CAM products.¹³⁰ As a consequence, health professionals involved in cancer care support more scientific studies on safety and the efficacy of CAM,¹³¹ which has led to the appearance of position statements, clinical guidelines, and recommendations to guide appropriate use of CAM in this setting.^{8,13,131-133}

In summary, CAM continues to present a challenge to health care professionals. Given that CAM use is on the rise in patients with cancer, it is important to ensure that use is appropriate to minimize untoward adverse effects between CAM and conventional cancer treatment.

Health behaviors associated with CAM use, or nonuse during cancer treatment, are a result of dynamic health decision-making processes by patients, which are influenced by a myriad of factors. It is possible that the patients' CAM use reflect a continuous urge to optimize their health in ways within their power, irrespective of the views and support of the health professionals with whom they interact.

Prospective research is required to determine if specific aspect(s) may trigger patient use of CAM at the point of commencing, or change of, cancer treatment due to disease progression. Moreover, it will be valuable to establish ways to optimize health professional interventions to support the seemingly volatile nature of patient CAM behaviors.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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