

Utilization patterns of complementary and alternative medicine in Australia, Canada and the United States: popularity of dietary supplements, mind-body and manipulative therapies

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INTRODUCTION

Complementary and alternative medicine (CAM) includes diverse modalities and products that are not integral part of conventional, mainstream medicine [1]. During the past decade, the interest in CAM has increased and the attitude of the general population towards CAM appears to be generally positive [2-3]. It is evident that expenditure on CAM varies worldwide, but it is difficult to put a precise figure on the global expenditure on all CAM approaches due to inconsistency in terminology and regulatory status in different countries [4]. Recent surveys have estimated that substantial amount of money is spent out-of-pocket on CAM. In the USA annual estimates varied from USD 30.2 billion to USD 34.4 billion during a 1997-2012 period [5-9], with annual estimates representing about 11.9% and 9.2 % of all out-of-pocket spending on health care and 1.5% and 1.1% of total health care spending in 2007 and 2012, respectively [6,8,10]. In Canada estimates of annual out-of-pocket expenditure on CAM were CAD 3.8 billion in 1997 [11] and CAD 7.8 billion in 2006 [12]. In Australia, in the period 1993-2004, the estimated annual out-of-pocket expenditure on CAM varied from AUD 930 million to AUD 2,287 million [13-15].

PATTERNS OF USE OF CAM IN AUSTRALIA, CANADA AND THE UNITED STATES

If we observe results of the follow-up nationally representative surveys in Australia [13-

15], Canada [11,12] and the United States (random household telephone surveys [5,16] and National Health Interview Surveys [6-9,17-18]) (Table I) we can easily notice that usually the same types of CAM were among the top 5 most frequently used therapies in the past 12 months, just the order is slightly different across some of the observed years. Although the approaches included in the supplement of National Health Interview Surveys related to the CAM use in the USA mostly remained constant, there were still slight variations among survey years which preclude direct comparison of the results for questions that were not asked consistently each time [9]. There were also differences in categorization of CAM compared to earlier studies that were conducted as random household telephone surveys [5,16]. Despite this, we can notice that most popular domain during 1990 [16], 1997 [5], 1999 [17] and 2002 [18] were mind-body therapies. On the other hand, in 2007 [6,7] and 2012 [8,9] surveys showed that non-vitamin non-mineral dietary supplements were the most commonly used complementary approach. However, it seems that percentage of non-vitamin non-mineral dietary supplements use didn't change substantially over years – in 2002 18.9% respondents reported using them during past 12 months [18], and in 2007 [6,7] and 2012 [8,9] the observed percentage remained constant (17.7%). In addition, in 2002 CAM was defined more broadly by including prayer specifically for health purposes as CAM practice leading to estimated prevalence of CAM use of 62%, but when this type of CAM was

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excluded 36% of adults have used some type of CAM during previous 12 months [18]. In the surveys in the subsequent years (2007 and 2012) prayer specifically for health purposes was not considered to be CAM approach [6-9] and the reported prevalence of CAM use was 38.3% in 2007 [6,7] and 33.2% in 2012 [9-10]. Taking this example into account, it should be emphasized that direct comparison of the prevalence and expenditures across studies may be misleading without taking into consideration which health approaches are included in the definition of CAM [9]. Use of CAM in the USA was more prevalent among women, middle-aged group, with higher level of education and who were not poor [5-7,16,17]. People who take natural products (dietary supplements other than vitamins and minerals) or practice yoga were more likely to do so for wellness reasons than for treating a specific health condition [10]. On the other hand, people who use manipulative techniques more often do so for treatment reasons rather than wellness [10].

Mind-body and manipulative therapies were dominant forms of CAM in Canada in 1996 and 2007 [11,12]. The use of CAM was more prevalent in 18-34-year-old age group and those with higher level of education [11,12]. The majority of respondents used CAM for wellness, in order to prevent future illness from occurring or to maintain health and vitality [11,12].

In Australia, based on data collected via the South Australian Health Omnibus Survey, manipulative therapies and self-prescribed vitamins consistently were the most commonly used type of CAM in Australia from 1993 to 2004 [13-15]. CAM was mostly used to maintain general health and greatest use of CAM was noted among women aged 25-34 years with higher income and education levels who live in metropolitan area and were born in Australia [13-15].

Dietary supplements

Non-vitamin, non-mineral, dietary supplements remain popular and frequently used despite unclear health benefits [9]. In the USA in 2002 the most commonly used non-vitamin, non-mineral, natural products were Echinacea, ginseng, Ginkgo biloba and garlic supplements [18]. The situation was changed in 2007 and 2012 in favor of fish oil supplements and glucosamine, chondroitin or combination supplements [7,9]. In 2007 and 2012 in the USA public spent USD 14.8 billion and USD 12.8 billion out-of-pocket on the purchase of natural product supplements, which was approximately 31% and 24% of the amount paid out-of-pocket for prescription

drugs in 2007 and 2012 (USD 47.6 billion and USD 54.1 billion), respectively [6,8].

Herbal therapies were ranked fifth in Canada in both 1997 and 2006 and mostly used for treatment of colds/flu [11,12]. High dose/mega vitamins were not so popular in Canada and 3% and 2% of respondents have used it in 1997 and 2006, respectively [11,12]. Insurance coverage was below 12% for respondents using high dose/mega vitamins and herbal therapies, whereas projected national expenditure on herbs and vitamins was about CAD 937 million in 1997 and CAD 923 million in 2006 [11,12].

In Australia self-prescribed vitamins were the most used products from 1993 to 2004 [13-15], followed by herbal medicines in 1993 and 2004 [13,15]. In 1992/1993 estimated amount spent on CAM products has almost doubled the amount of patient contributions for all pharmaceutical drugs purchased in Australia [13]. In 2000 people paid almost four times more for alternative therapies than contributions to all pharmaceuticals [14]. In 2004 the overall extrapolated expenditure on CAM products decreased from AUD 1.67 billion in 2000 to AUD 1.31 billion in 2004, probably due to the decrease in number of products used per person following adverse publicity in the media surrounding CAM products in 2003 during the Pan Pharmaceutical crisis when concerns were raised about the content and quality control of products made by this manufacturer [15].

Mind-body therapies

Mind-body therapies include a wide range of practices designed to facilitate the capacity of the mind to affect health [19]. As they usually involve inexpensive self-care based activities, they seem to be a cost-saving alternative in an age of increasing medical expenditures [19,20].

The mind-body practices most commonly used by adults in the USA include yoga, deep-breathing exercises and meditation [9,10]. The percentage of adults who practice yoga has increased substantially, from 5.1% in 2002 to 6.1% in 2007 and 9.5% in 2012 [9,10]. Since yoga is offered in a variety of settings ranging from self-practice to specialized studios, it is not unexpected that the yoga industry experienced such growth in recent years [9]. In 1999 and 2002 prayer and spiritual healing were very popular in the USA [17,18].

Prayer and relaxation techniques were the two most popular CAM approaches in 1997 in Canada [11]. However, they became less popular in 2006 [12]. Sizable increase in the use of yoga was also noted – from 4% in 1997

Australia			Canada			USA				
1993 [13]	2000 [14]	2004 [15]	1997 [11]	2006 [12]	1990 [16]	1997 [5]	1999 [17]	2002 [18]	2007 [6,7]	2012 [8,9]
Top 5 CAM products										
Vitamins - not prescribed (37.6%)	Vitamins - not prescribed (36.4%)	Vitamins - not prescribed (39.2%)	Prayer/spiritual practice (18%)	Massage (19%)	Relaxation techniques (13%)	Relaxation techniques (16.3%)	Spiritual healing or prayer (13.7%)	Prayer for one's own health (43%)	Non-vitamin, non-mineral, natural products (17.7%)	Non-vitamin, non-mineral, natural products (17.7%)
Herbal medicines (9.9%)	Aromatherapy oils (15.3%)	Herbal medicines (20.6%)	Relaxation techniques (17%)	Prayer/spiritual practice (16%)	Chiropractic (10%)	Herbal medicine (12.1%)	Herbal medicine (9.6%)	Prayer by others for one's own health (24.4%)	Deep breathing exercises (12.7%)	Deep breathing exercises (10.9%)
Mineral supplements (9.2%)	Herbal medicines (13.4%)	Mineral supplements (13.6%)	Chiropractic (13%)	Chiropractic (15%)	Massage (7%)	Massage (11.1%)	Chiropractic therapy (7.6%)	Non-vitamin, non-mineral, natural products (18.9%)	Meditation (9.4%)	Yoga (9.5%)
Evening primrose oil (7.8%)	Mineral supplements (10.6%)	Aromatherapy oils (11.2%)	Massage (12%)	Relaxation techniques (14%)	Imagery (4%)	Chiropractic (11.0%)	Lifestyle diet (6.9%)	Deep breathing exercises (11.6%)	Chiropractic or osteopathic manipulation (8.6%)	Chiropractic or osteopathic manipulation (8.4%)
Homeopathic medicines (4.4%)	Evening primrose oil (8.0%)	Soy products (3.8%)	Herbal therapies (12%)	Herbal therapies (10%)	Spiritual healing (4%)	Spiritual healing by others (7.0%)	Massage therapy (6.4%)	Participation in prayer group for one's own health (9.6%)	Massage (8.3%)	Meditation (8.0%)
Top 5 CAM practitioners										
Chiropractors (15.0%)	Chiropractors (16.7%)	Chiropractors (16.7%)	Massage (50%)	All CAM types (54%)	All CAM types (34%)	All CAM types (42.1%)	All CAM types (28.9%)	All CAM types (62%)	All CAM types (38.3%)	All CAM types (33.2%)
Naturopath (5.0%)	Naturopath (6.0%)	Naturopath (5.7%)	Chiropractic (13%)	Chiropractic (15%)	Imagery (4%)	Chiropractic (11.0%)	Lifestyle diet (6.9%)	Deep breathing exercises (11.6%)	Chiropractic or osteopathic manipulation (8.6%)	Chiropractic or osteopathic manipulation (8.4%)
Acupuncturist (2.0%)	Acupuncturist (2.8%)	Acupuncturist (2.1%)	Herbal therapies (12%)	Herbal therapies (10%)	Spiritual healing (4%)	Spiritual healing by others (7.0%)	Massage therapy (6.4%)	Participation in prayer group for one's own health (9.6%)	Massage (8.3%)	Meditation (8.0%)
Homeopath (1.2%)	Homeopath (1.2%)	Herbal therapist (1.9%)	Herbal therapies (12%)	Herbal therapies (10%)	Spiritual healing (4%)	Spiritual healing by others (7.0%)	Massage therapy (6.4%)	Participation in prayer group for one's own health (9.6%)	Massage (8.3%)	Meditation (8.0%)
Iridologist (0.8%)	Iridologist (1.2%)	Aroma therapist (1.1%)	Herbal therapies (12%)	Herbal therapies (10%)	Spiritual healing (4%)	Spiritual healing by others (7.0%)	Massage therapy (6.4%)	Participation in prayer group for one's own health (9.6%)	Massage (8.3%)	Meditation (8.0%)
Prevalence of CAM use										
Products (48.5%)	Products (52.1%)	Products (52.2%)	All CAM types (50%)	All CAM types (54%)	All CAM types (34%)	All CAM types (42.1%)	All CAM types (28.9%)	All CAM types (62%)	All CAM types (38.3%)	All CAM types (33.2%)
Practitioners (20.3%)	Practitioners (23.3%)	Practitioners (26.5%)	All CAM types (50%)	All CAM types (54%)	All CAM types (34%)	All CAM types (42.1%)	All CAM types (28.9%)	All CAM types (62%)	All CAM types (38.3%)	All CAM types (33.2%)

Table 1. Utilization patterns of CAM in Australia, Canada and United States (USA) according to nationally representative surveys

[11] to 9% in 2006 [12]. Prayer is a therapy typically started at an earlier age: 15 to 19 (with a national average of age 18), and mostly used for general overall health [11,12]. Relaxation techniques were usually first tried between ages 26 and 33 (national average was age 29) and used for the treatment of stress [12]. Insurance coverage for relaxation techniques was 8-9% [11,12].

Mind-body interventions were not so popular in Australia [13-15]. Aromatherapy oils were the only CAM products from this group of CAM approaches ranked second and fourth in 2000 [14] and 2004 [15], respectively.

Manipulative therapies

Manipulative therapies, such as chiropractic or osteopathic manipulation and massage, are also considered to be one of the frequently used CAM methods. Chiropractors were the most frequently visited CAM practitioners in Australia in all three surveys [13-15].

In Canada, in both 1997 and 2006, they were ranked third [11,12]. Respondents typically first tried chiropractic care between ages 27 and 34 years [12]. In addition, massage became the most popular CAM method in 2006 [12]. Both massage and chiropractic care were usually used for back or neck problems [11,12]. Interestingly, respondents who used chiropractic care reported that about 75% and 72% of the cost were covered by health insurance in 1997 and 2006, respectively [11,12]. The costs covered by insurance for massage therapy rose 21 percentage points – from 36% to 57% from 1997 to 2006 [11,12].

Chiropractic or osteopathic manipulation in the USA were ranked second in 1990 [16], third in 1999 [17] and fourth in 1997 [5], 2007 [6, 7] and 2012 [8, 9] by prevalence of use. Chiropractic care can also be covered by insurance in the USA, e.g. some states mandate coverage of chiropractic care in private insurance, the US Congress has authorized that some chiropractic services be covered by Medicare and Medicaid, and federal employees have chiropractic coverage in the Federal Employee Health Benefit Program and in the Federal Employee Worker's Com-

pensation Program [21,22]. In 2012, partial insurance coverage was more common than complete coverage for chiropractic care and massage [10].

CONCLUSIONS

The magnitude of the demand for CAM is noteworthy in Australia, Canada, and the USA. Some differences in patterns of use can be observed in previously described national surveys in these countries, but they should be interpreted cautiously as there were differences in categorization of CAM approaches among them. Broadly regarded, Australians prefer dietary supplements and manipulative therapies. Mind-body and manipulative therapies are preferred among Canadians, whereas people in the USA lean towards the use of dietary supplements and mind-body therapies. These differences could be attributed to many reasons, including cultural, social, economic and technological trends.

Considering observation that people with multiple chronic conditions have an increased likelihood of using CAM, overall aging of the population and increasing prevalence of chronic diseases, it is likely to expect that CAM approaches will become even more popular in the future [12,23-28]. In recognition of the widespread popularity of CAM, leading academic institutions have started to incorporate CAM into medical education, clinical practice and research [29,30]. However, still much remains to be done in this area. There is a growing demand for collecting efficacy and safety data for CAM treatments, as well as reaching consensus regarding uniformity of definition and categorization of various CAM approaches in order to enable comparability of studies conducted in different regions and time periods [31]. Some CAM treatments are covered by insurance in Australia, Canada, and the USA, but more work is needed before CAM becomes more comprehensively included in insurance schemes [32]. A thorough review of economic and health outcomes of CAM treatments is needed for evidence-based consideration of their expenses coverage [33].

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