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RUNNING HEAD: CAM decision factors

Consumer decision factors for initial and long-term use of complementary and alternative

medicine

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.Abstract

Guided by the conceptual framework of the consumer decision-making model, the present study compared the factors associated with initial and long-term use of complementary and alternative medicine (CAM) providers. A survey was completed by 239 people recruited from the offices of physicians and CAM practitioners. Conventional medicine clients ($n = 54$), new/infrequent ($n = 73$) and established CAM clients ($n = 112$) were compared to identify the decision factors for initial and long-term CAM use. Consistent with the components of this model, we found support for the roles of external influences (age, social recommendations), decision process factors (symptom severity, egalitarian provider preference) and post-decision factors (dissatisfaction with conventional care) depending on whether the pattern of CAM use was new/infrequent, or established. Overall, this study provides preliminary support for the utility of the consumer decision-making model as an integrative framework for understanding the roles of correlates of CAM use.

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Consumer decision factors for initial and long-term use of complementary and alternative

medicine

Complementary and alternative medicine (CAM) includes a diverse group of healing

therapies (e.g., chiropractic, homeopathy, massage therapy, and acupuncture) not currently

considered an integral part of conventional medical practice (National Institutes of Health, 2002).

Interest in and use of these therapies has continued to rise over the past two decades (Barnes,

Powell-Griner, McFann, & Nahin, 2004) prompting research into the reasons why health-care

consumers choose CAM. Although a multitude of factors (e.g., sociodemographics, beliefs, and

health status) have been suggested, how these factors may operate together in CAM decisions

remains unexplained. One reason may be the lack of a clear and unifying conceptual framework

from which to situate these decision factors and the processes through which they may direct

different types of CAM decisions.

Indeed, much of the research on CAM decisions to date has been atheoretical with

predictors simply classified as "push" or "pull" factors (Boon, Brown, Gavin, & Westlake,

2003a; Furnham & Smith, 1988) without an explanation of how these determinants may work

with other predictors to actually result in the decision to use CAM. Among the few studies that

have employed a conceptual framework to explain the roles of CAM decision factors, the health

self-management model (Grzywacz et al., 2005), the self-regulatory model (Cameron, Leventhal,

& Leventhal, 1993), and the socio-behavioral model (Andersen & Newman, 1973) have been

applied (Bishop, Yardley, & Lewith, 2006; Sirois & Gick, 2002). The latter model in particular

has been used most often to organize the predictors of CAM use and specifically CAM

consultations (Hendrickson, Zollinger, & McCleary, 2006; Hildreth & Elman, 2007; Kelner &

Wellman, 1997; Sirois & Gick, 2002). According to this model, health-care decisions follow

from a sequence of conditions initiating with predisposing factors (e.g., beliefs, sociodemographic variables), the ability to secure health services (e.g., income), and medical need. Predisposing variables such as health beliefs influence health-care use indirectly, whereas medical need is the most immediate cause of health service use (Andersen & Newman, 1973). Although this model provides a general guide for delineating the sequence of factors that may result in a decision to use CAM, it does not sufficiently account for the more complex and non-linear processes that may be involved, or how and why decisions among subgroups of CAM users may differ.

Although it has been suggested that patients, and CAM users in particular, are becoming more consumer-minded in their health-care choices (Kelner & Wellman, 1997), models of consumer decision making have not been applied to this increasingly popular health-care choice. Such models may be useful not only to understand how diverse correlates of CAM use are linked to decision making, but also to understand the different decision processes among different sub-groups of CAM users. For example, in contrast to initial or trial use, long-term CAM use is thought to involve more enduring motivations and factors that are distinct from those for initial CAM use (Sirois & Gick, 2002; Vincent & Furnham, 1996). Yet few studies have compared the factors associated with initial CAM use to those for long term CAM use, or employed a conceptual framework to explain how and why they may differ.

The present study had two main objectives. First, we applied and tested the efficacy of the Consumer Decision-Making model (Kanuk and Schiffman, 2000) for understanding the relative roles of several factors that have been implicated in the decision to use CAM. Specifically we examined how socio-demographic factors, medical needs, social relationships, dissatisfaction with conventional treatment, and patients' role expectations for health-care

providers are linked to decisions to consult CAM providers from a consumer-decision-making perspective. Second, we used this model to examine the role of these decision factors for two different sub-groups of CAM users: new or infrequent CAM clients and long-term CAM clients. Although limited, the research to date suggests that the factors and decision processes involved in initial CAM and long-term CAM use may be different (Luff & Thomas, 2000; Sirois & Gick, 2002). The following sections provide a brief outline of the consumer decision-making model, followed by a presentation of how the roles of the decision factors investigated in the current study might be explained by this model.

CAM use and the consumer decision-making model

One advantage of using a consumer decision-making model for understanding the factors influencing the decision to use CAM is that it can account for a variety of decision factors and the complexity of their interactions. Rather than simply categorizing these factors as push or pull (Furnham & Smith, 1988), or proposing a sequential order for their influence on health-care decisions as in the socio-behavioral model (Andersen & Newman, 1973), the consumer decision-making model proposed by Kanuk and Schiffman (2000) considers the flow and reciprocal influences of three conceptual components in the decisions made by consumers: *external influences* (i.e., inputs), *the consumer decision-making process*, and *post-decision behaviour* (i.e., outputs). *External influences* include the effect of the sociocultural environment (e.g., family and informal sources, social class) on the consumer's commodity-related values, beliefs and behaviour. The *consumer decision-making process* considers the influence of the psychological field (e.g., psychological factors such as motivation, attitudes, and personality) on the recognition of need, and the subsequent search for information and evaluation of alternatives. The "searching" initially occurs via memory, and may also involve a consideration of external

sources. The degree of searching also depends on several factors including the consumer's (or patient's) previous level of experience with the commodity. Lack of previous experience with a particular commodity and unsatisfactory experience within the commodity category (e.g., health-care providers) increase the pre-use search. The culmination of these factors results in the choice of commodity (or for our purposes, health-care service). The subsequent *post-decision behaviour* includes both service use behaviour and post-use evaluation, in which consumers compare their experience of the service to their expectations. Consumers may initially explore their choice through a trial use, and if their experience with the service exceeds expectations, the resulting satisfaction will influence intentions to repeat the choice. Thus, post-use evaluation serves as feedback to the consumer's experience with the service, which reinforces existing elements of the psychological field, and in turn influences future perceptions of need and decisions.

The role of cognitive and emotional decision factors presented in this model is consistent with Lupton's (1997) proposition that health-care decisions are not simply a rational response to perceived need. Like most commodities, health-care has not only "use" or practical value but also abstract value involving the way in which the provider interacts with the patient, with the tone, manner, and style of interaction as central features of consumers' health service experience (Lupton, 1997). Viewed from the consumer decision-making model, the patients' experience with health-care may play a pivotal role in the continued commitment to a health-care modality and in influencing the health-care related attitudes and beliefs associated with the perceived need for that type of care.

External influences in CAM decisions

Within the consumer decision-making model, external influences impact the consumer's

service-related values, attitudes, and behaviours (Kanuk & Schiffman, 2000). Socio-demographic factors influence how consumers evaluate health-care, and are known to be associated with CAM use. Compared to non-users, individuals who use CAM tend to be female (Barnes et al., 2004), middle aged,(Conboy et al., 2005; Grzywacz et al., 2005), have higher incomes and be better educated (Barnes et al., 2004; Eisenberg et al., 1998; Fautrel et al., 2002).

Several studies suggest that social relationships may influence the decision to use CAM. For example, a qualitative study of arthritis patients who used CAM revealed that personal testimonials and recommendations from family and close friends was often a precursor to the decision to use CAM (Caspi, Koithan, & Criddle, 2004). Similarly, research indicates that friends and family were among the most commonly utilized sources of CAM information (Eng et al., 2003; Lee, Charn, Chew, & Ng, 2004; Robinson & Cooper, 2007). Overall, these findings are consistent with a consumer decision-making view of CAM use, suggesting that in the absence of prior personal experience with CAM, trusted social relationships serve as a valued external information source in the decision to use CAM.

Symptoms and psychological factors as decision process factors

An important feature of the consumer decision-making model is that it highlights the proximal influence of psychological factors on the recognition and perception of need, rather than relegating their role as distal as in the socio-behavioural model. With respect to health-care, this need is primarily a practical one triggered by the experience of troubling symptoms. Indeed, CAM users report a greater number of health problems (Astin, 1998; Eisenberg et al., 1998; Sirois & Gick, 2002), and chronic health conditions in particular (Busato, Donges, Herren, Widmer, & Marian, 2006; Eisenberg et al., 1998; Sirois, In press). However, psychological factors may also play a role in recognizing the need for health-care. For example, the stress and

anxiety associated with perceived symptoms can heighten the perception of need and influence care-seeking decisions (Cameron, Leventhal, & Leventhal, 1993). Yet few studies have examined how the subjective experience of symptoms may relate to initial and long-term CAM decisions. CAM decisions may be related to the number of symptoms or conditions experienced, as well as how bothersome or distressful they are, especially if conventional health-care has been unsuccessful in providing relief. Supportive evidence comes from two illness-specific studies. In one study of breast cancer patients, physical distress was the primary reason for using CAM (Crocetti et al., 1998); in a study of arthritis patients, those who consulted CAM providers reported more intense symptoms than CAM non-users (Fautrel et al., 2002). Whether symptom distress is related to CAM consultations in a general medical sample remains to be determined.

Dissatisfaction with conventional medicine as post-use evaluation

From the perspective of the consumer decision-making model, CAM use may be prompted by experiences with conventional medical-care that fall short of meeting the patients' health-care needs and expectations. Indeed, dissatisfaction with conventional medical-care is a common motivation for deciding to use CAM, with CAM users reporting that conventional medicine did not meet their needs (Paltiel et al., 2001), was ineffective (Boon et al., 2003b; Ganguli, Cawdron, & Irvine, 2004; Jørgensen & Launsø, 2005; Sirois & Gick, 2002) and had adverse effects (Boon et al., 2003a; Ganguli et al., 2004). Conversely, researchers have found that effective conventional treatment was the most common reason for not using CAM (Li, Verhoef, Best, Otley, & Hilsden, 2005), and non-users would consider trying CAM if conventional treatments became ineffective for their health issue (Caspi et al., 2004). Although dissatisfaction with conventional treatment has been noted as an important factor for initial CAM use in both qualitative (Jørgensen & Launsø, 2005; Luff & Thomas, 2000) and quantitative

(Sirois & Gick, 2002) studies, its role in long-term CAM use is unclear. Dissatisfaction with conventional care was linked to heavy CAM use in one study of cancer patients (Shumay, Maskarinec, Gotay, Heiby, & Kakai, 2002), but was unrelated to long-term CAM use in a study of general medicine clients (Sirois & Gick, 2002).

Role expectations and post-use evaluations

Dissatisfaction with the less tangible aspects of conventional care, such as the doctor-patient interaction, has been noted as a decision factor for using CAM. Qualitative studies have found that the lack of a caring therapeutic relationship with conventional doctors was a reason for using CAM (Luff & Thomas, 2000; Lupton, 1997), and that CAM users expect to have treatment delivered in an empathetic and understanding manner (Richardson, 2004). These emotional patient needs may reflect a broader preference for care that has been termed *patient-centered*. This approach to care includes building a caring and empathetic relationship that considers the patient as a partner with the health-care provider in the priorities, problems and goals of treatment (Stewart et al., 1995). Thus a preference for a collaborative or egalitarian provider role may guide the choice to consult CAM providers.

Based on the perspective of the consumer decision-making model, the link between provider role preference and CAM use may be explained by two separate decision processes. First, individuals who prefer an egalitarian, patient-centered provider relationship may be initially drawn to CAM because they expect to receive this style of care from CAM providers. Indeed, it has been suggested that individuals choose CAM because it is congruent with their values and beliefs (Astin, 1998; Sirois & Gick, 2002). Accordingly, we term this first explanation a *congruency hypothesis*. Alternatively, it is also possible that experiences with CAM providers influence this preference and the choice to use CAM long term. For example,

patients with some preference for an egalitarian patient-provider relationship may decide to initially use CAM. Through long-term use of CAM this preference is reinforced, strengthening the perceived need for this style of care in future health-care encounters. Sirois and Gick (2002) similarly proposed a process of reciprocal causation to explain their finding that health awareness predicted initial CAM use and increased with long-term CAM use. Therefore, we term this second explanation a *reciprocal-influence hypothesis*. At least one longitudinal qualitative study supports this reciprocal-influence hypothesis, by finding that acupuncture use resulted in changes in personal and social identity (Paterson & Britten, 2003).

The current study

As noted, research to date on the factors associated with CAM have been somewhat atheoretical or at least lacking a conceptual framework that accounts for the complex factors associated with CAM use among different subgroups of CAM users. We suggest that the consumer decision-making model may provide an appropriate framework for understanding the processes through which these factors lead to the decision to use CAM. Unlike previously applied models, the consumer decision-making model presents the decision process as a cumulative one, in which the initial reasons for making a particular health-care choice may evolve with each new experience. Consequently, the factors associated with the initial decision to use CAM may not be the same as those for long-term CAM use. Therefore, we examined how several external, process, and post-decision factors may be associated with initial and long-term provider-based CAM use. Following the method used by Sirois and Gick (2002), we distinguished CAM clients based on their length and frequency of CAM use and compared new/infrequent CAM clients to CAM nonusers, and to long-term or *established* CAM clients, to test the relative roles of these factors in predicting CAM use.

Because research has generally not differentiated between factors associated with initial and long-term CAM use, our research questions were more exploratory, except where previous evidence provided a clear direction. We anticipated that medical need, and subjective perceptions of that need, would be associated with CAM use. Consistent with previous research (Jørgensen & Launsø, 2005; Luff & Thomas, 2000; Sirois & Gick, 2002) we expected that dissatisfaction with conventional medicine would be implicated as a decision factor for initial/infrequent but not long-term CAM use. And because patients may differentially evaluate aspects of health-care, we examined the role of specific dimensions of satisfaction with conventional care in the decision to use CAM. We also explored whether provider role expectations (egalitarian versus authoritarian) were linked to initial/infrequent CAM use, or long-term CAM use, or both. Finally, we examined specific attitudes of non-users towards CAM use, and the reasons for CAM use among both newer and established CAM clients to determine how social relationships and perceived treatment efficacy are linked to CAM decisions.

<div align="center">Method</div>

Setting and sample

The study was conducted over a 14-month period beginning in January 2005 in Ontario, Canada. Following approval from the institutional research ethics board, participants were recruited by distributing questionnaires at 11 conventional medicine clinics and 16 CAM clinics. The CAM clinics included four chiropractic clinics, eight clinics which offered both chiropractic and massage therapy, and one clinic which offered acupuncture, chiropractic and reflexology. The remaining five CAM clinics included two naturopathic clinics, one massage therapy clinic, one homeopathic clinic, and one clinic that offered energy healing, reiki and reflexology. The conventional clinics consisted of six general/family physician clinics, two walk-in clinics, two

community health clinics, and one urgent care clinic. Each clinic was staffed by one or more

conventional medicine or CAM practitioners. A total of 61 clinics were approached to participate

in the study, and 32 (52.5%) clinics refused for various reasons such as office policies, lack of

display space, and no interest in the study.

A total of 679 questionnaires were distributed to the 27 health clinics. Of the

questionnaires made available to participants through a display in the clinics' waiting room, 242

(35.6%) were completed and returned. Other than assessing questionnaires displayed versus

those returned, it is difficult to estimate the exact response rates as participation is based on self-

selection. Individual clinic return rates ranged from 20% to 57%. Differences in individual clinic

response rates may be explained by factors such as operating hours, size of clinic, and client

volume. Nearly 59% (142) of the completed questionnaires were obtained through conventional

medicine clinics despite the fact that more CAM clinics were sampled. This was not unexpected

because these clinics were larger, had more regular operating hours than the CAM clinics and,

thus, a higher volume of patients. Because most individuals use CAM in addition to conventional

medical-care (Druss & Rosenheck, 1999), we distributed more questionnaires at conventional

medicine clinics to obtain an adequate sample of patients who were not CAM clients.

Two hundred and thirty-nine participants were included in the study. Although 242

completed questionnaires were received, three questionnaires were excluded due to excessive

missing data. Using the criteria outlined by Sirois and Gick (2002), we initially classified

participants into four client groups based on their use of different health services rather than the

type of office from which they were sampled. The conventional medicine clients ($n = 54$)

included individuals who had not used CAM regularly or at all in the past year, or previously.

Established CAM clients (ECAM; $n = 112$) included individuals who had used CAM for over

five years, or had used more than one complementary therapy for three to five years at high

frequency (> three times per year/therapy, and with > one therapy used). New CAM clients were

individuals who used CAM for a year or less ($n = 22$). Infrequent CAM clients were individuals

who used CAM for one to two years or who used CAM for three to five years infrequently (<

five times per year for all CAM therapies combined; $n = 51$). Preliminary analyses (ANOVA) of

possible differences between the new and infrequent CAM subgroups on the main variables

revealed that new CAM clients ($M = 4.14$, $SD = 1.70$) reported a greater number of acute health

conditions than did infrequent CAM clients ($M = 3.22$, $SD = 1.79$; $F (1, 71) = 4.18$, $p = .045$).

Following the procedure of Sirois and Gick (2002), the two groups were collapsed into one

group of new/infrequent CAM (NICAM) clients ($n = 73$). The demographic characteristics of the

sample stratified by client group are presented in Table 1.

Procedure

The questionnaires were made available to potential participants in the waiting room of

the health clinics through one of two types of displays. The first type consisted of a sign

providing information about the study, and a covered box containing questionnaire packages.

Patients interested in participating took a questionnaire package to complete at a location of their

choice. The second type, used by three clinics because of limited space in the waiting room,

consisted of a sign advertising the study on a bulletin board. Patients interested in participating

contacted the researchers and were mailed a questionnaire package. The package included

instructions to read the informed consent, complete the questionnaire in full, and mail it to the

principle investigator in the pre-addressed, postage-paid envelope provided. As an incentive,

participants could enter into a draw for one of several gift certificates.

Materials

Participants completed a self-report questionnaire that assessed the study variables including demographic information, health problems, use of provider-based CAM, satisfaction with conventional doctors, beliefs about the health-care provider's role, attitudes towards CAM, and reasons for using CAM.

Demographic information. Participants reported general demographic information regarding age, gender, employment, education level, ethnicity, and marital status.

Health. Participants completed the Brief Health History questionnaire (Sirois & Gick, 2002), a self-report checklist that assesses the experience of 13 acute and 16 chronic health problems within the past six months. The degree to which participants were bothered by each chronic condition experienced was rated on a 5-point scale with response options ranging from 0 (*not bothered at all*) to 4 (*extremely bothered*). The total number of acute and chronic problems experienced was summed for each individual. A mean subjective severity score for the chronic health problems was also calculated by summing the severity ratings and dividing by the number of chronic problems.

Use of complementary and alternate medicine (CAM). The use of a variety of provider-based complementary therapies, including frequency of use, was assessed with a measure adapted from Sirois & Gick (2002). Participants indicated if they had ever tried any of the CAM listed which included chiropractic, homeopathy/naturopathy, acupuncture, massage therapy, reflexology, and other, with space to specify other therapies tried. Using this list, participants indicated how many times they had tried CAM (if any) in the past three months and the past year and how long they had been using CAM (under 6 months, under 1 year, 1 to 2 years, 3 to 5 years, or over 5 years). Participants also indicated whether they used CAM in addition to or instead of conventional medicine.

Reasons for using CAM.   Reasons for CAM use among newer and established CAM clients were assessed with three items derived from previous research (Vincent & Furnham, 1996) and used in a previous investigation of the motivations to use CAM (Sirois & Gick, 2002). The stem for the items was "I use complementary/alternative medicine/therapies because…", and were completed by "the conventional medicine treatment I received had unpleasant side effects", "friends or family members recommended I try complementary/alternative medicine", and "conventional medicine was not effective for my health problem." Items were scored on a 6-point Likert-type scale with response options ranging from 1 (*strongly disagree*) to 6 (*strongly agree*) and assessed individually between the two CAM client groups.

Attitudes towards CAM. Attitudes of conventional medicine clients towards CAM use relevant for the aims of the current study were assessed with two items used in previous CAM research (Sirois & Gick, 2002). The items "I would try using a complementary/alternative therapy if someone I trusted recommended it to me" and "I would try using one or more of them if conventional medicine failed to give me relief for a health problem" were rated on a 6-point Likert-type scale with response options ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Responses were converted to a dichotomous disagree/agree rating scale for purpose of determining the rate of overall agreement with each item.

Patient satisfaction. The degree of satisfaction with the treatment from conventional medical doctors was assessed with a revised version of the Patient Satisfaction Questionnaire Short-Form (PSQ-18; Marshall & Hays, 1994), a well-validated measure which includes scales for seven specific aspects of patient satisfaction. These include general satisfaction (two items), time spent with doctor (two items), financial aspects (two items), accessibility and convenience (four items), communication (two items), interpersonal manner (two items), and technical quality

(four items). For the purposes of this study the financial aspects subscale was removed as there is a no pay universal health-care system in Canada. All items were scored on a 5-point Likert-type scale with response options ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). Eight items were reversed scored before computing the mean for each subscale with higher values reflecting greater satisfaction with the treatment received from doctors.

Expected health-care provider role. The role expectations for health-care providers was assessed with an adapted version of the Beliefs About Physicians Scale (BAPS; Ditto, Moore, Hilton, & Kalish, 1995), a 12-item scale that assesses egalitarian versus authoritarian beliefs about the role of physicians. For the current study the term "doctors" was replaced with "health-care professionals" in all of the items because participants were clients of conventional medicine and CAM providers. Two additional items about treatment decision-making roles were added. Given these changes and the fact that the scale was originally designed for clients of physicians, a reliability analyses was conducted on the 14 items to determine if any further changes were needed. The analysis revealed poor internal consistency due to three items from the original BAPS which were subsequently removed. The resulting 11-item Beliefs about Health-care Professionals Scale (BAHPS) demonstrated good internal consistency (Cronbach's alpha = .75). Items were rated on a 6-point Likert-type scale with response options ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). After reverse scoring four items, a mean BAHPS score was calculated, with higher scores reflecting stronger expectations for an authoritarian health-care professional role, and lower scores reflecting stronger expectations for an egalitarian health-care professional role.

Statistical analyses

Among the CAM clients, we examined the extent of CAM use with χ^2 tests, and the

reasons for CAM use with χ^2 tests *and t*-tests. Among conventional medicine clients, we examined attitudes towards CAM through χ^2 tests. To investigate the relative roles of the decision factors associated CAM use, we conducted a multinomial backward step-wise logistic (MNL) regression with the client group as the dependent variable. In order to identify the specific factors associated with initial and long-term CAM use, the MNL model contrasts the NICAM group with (a) conventional medicine clients, and (b) ECAM clients. Because it was expected that the individual satisfaction subscales would be highly correlated with each other, a series of separate ANOVAs were first run to determine which subscales showed significant differences among the client groups. To correct for multiple comparisons only subscales significant at the $p < .01$ level were entered in the regression analyses. After controlling for education in the first step, all predictors of interest were entered in the second step, with a threshold of $p < 0.05$ set for retention in the model, and $p = 0.10$ for removal. Adjusted odds ratios and 95% confidence intervals (CI) were calculated for all variables remaining in the final model.

<div align="center">Results</div>

CAM use

Among those participants who consulted CAM providers ($n = 185$), the majority indicated that they used CAM in addition to (88.1%) rather than instead of conventional medicine ($\chi^2 (1) = 107.46, p < .000$). A larger proportion of ECAM clients (16.1%) used CAM to replace conventional treatments compared to NICAM clients (5.5 %; $\chi^2 (1) = 4.73, p < .05$).

The provider-based therapies used most frequently within the past year included chiropractic care (77.8%), massage therapy (71.4%), homeopathy/naturopathy (35.7%), acupuncture (20.5%), reflexology (11.9%) and reiki (7.6%). In addition, a small number of

participants consulted acupressurists (1.1%), iridologists (1.1%), Traditional Chinese medicine

practitioners (1.6%), and herbalists (1.6%) within the past year.

Attitudes towards CAM

The majority of conventional medicine clients (70.5%) agreed that they would try using

CAM if someone they trusted recommended it to them ($\chi^2(1) = 7.36$, $p < .01$). A significant

proportion of this client group (83.7%) also agreed that they would try using CAM if

conventional medicine failed to give them relief for a health problem ($\chi^2(1) = 19.56$, $p < .001$).

Reasons for initial and long-term CAM use

Among CAM clients, the majority agreed that they consulted CAM providers because

conventional medicine was not effective for their health problem (67.2%; $\chi^2(1) = 21.69$, $p <$

.001), and because friends or family members recommended that they try CAM (71.2%; $\chi^2(1) =$

33.01, $p < .001$). CAM clients as a whole were split on whether they used CAM because of the

side effects from the conventional treatment they received (55.7%; $\chi^2(1) = 2.1$, $p = ns$).

Compared to the ECAM clients ($M = 3.79$, $SD = 1.64$), NICAM clients agreed more that they

used CAM because of the recommendations of family and friends ($M = 4.29$, $SD = 1.41$; $t(182) =$

2.19, $p < .05$). However, ECAM clients ($M = 3.89$, $SD = 1.73$) compared to NICAM clients ($M =$

3.24, $SD = 1.73$) agreed more that they used CAM because conventional treatment had

unpleasant side effects ($t(182) = -2.51$, $p < .05$). NICAM ($M = 3.96$, $SD = 1.51$) and ECAM ($M =$

4.33, $SD = 1.63$) clients similarly agreed that they used CAM because conventional treatment

was not effective for their health problem ($t(182) = -1.5$, ns).

Decision factors associated with initial and established CAM use

The results of the ANOVAs for the satisfaction subscales are presented in Table 2.

Significant client group differences at the $p < .01$ level were found for the technical quality and

total satisfaction subscales, with both CAM client groups scoring lower on each satisfaction dimension than conventional medicine clients. Therefore, these two satisfaction subscales were entered into the multinomial logistic regression equation along with the number of acute and chronic health problems, subjective severity rating, expected health-provider role, gender, and age group.

Table 3 presents the adjusted odd ratios and 95% CI for the decision factors associated with initial and established CAM use. Overall the model accounted for 29.4% of the variance in the three client groups. The decision factors are presented separately for conventional medicine clients and ECAM clients, with NICAM clients serving as the comparison group. Compared with conventional medicine clients, NICAM clients reported greater subjective chronic illness severity and lower satisfaction with the technical quality of conventional medicine. NICAM clients were also more likely to have an expectation for an egalitarian health-care provider role, although this association was marginally significant. The comparison between the NICAM clients and ECAM clients indicated that ECAM clients had a higher expectation for an egalitarian health-care provider role, and were less likely to be under 25 years old than the NICAM clients.

Discussion

The increase in CAM use and its integration into mainstream medicine in recent years has underscored the need to better understand CAM related health-care decisions from a comprehensive theoretical framework. To this end, the present study tested the efficacy of the consumer decision-making model (Kanuk & Schiffman, 2000) for explaining CAM decision processes for initial and established CAM clients by examining how several potential correlates were linked to CAM use among CAM users and non-users. Consistent with the three

components suggested by this model, we found support for the distinct roles of external influences, decision process and post-decision factors depending on whether the pattern of CAM use was new and infrequent, or well established.

Decision factors for initial and infrequent CAM use

A comparison of conventional medicine clients to NICAM clients revealed three independent predictors of the decision to initially or intermittently consult CAM providers: greater symptom distress and a stronger expectation for an egalitarian health-care provider (decision process factors), and less satisfaction with the technical quality of conventional medicine (post-decision factor). In addition, the recommendations of family and friends (external influences), and ineffective conventional treatments (post-decision factor) were reasons for trying CAM endorsed by both the NICAM and the conventional medicine clients.

Consistent with the consumer decision-making model, two factors reflecting the post-use evaluation of conventional medicine were associated with the decision to try other health-care modalities, namely CAM. Although the univariate analysis revealed that the NICAM clients were generally dissatisfied with conventional medicine, the multivariate analysis suggested that they were specifically dissatisfied with the technical quality of the care they received from physicians. To the best of our knowledge this dimension of patient satisfaction has not been previously examined with respect to CAM use, nor specifically to initial CAM use. However, this finding is similar to that of other research where CAM clients were more skeptical of the efficacy of conventional medicine (Furnham & Forey, 1994; Furnham & Kirkcaldy, 1996). It has also been demonstrated that primary-care patients may prefer technical quality over interpersonal quality when forced to make tradeoffs in choosing a physician (Fung et al., 2005). Thus, some health-care consumers may decide to try CAM because they perceive that conventional medicine

has failed to meet their technical rather than just their interpersonal quality standards for health-care.

Consistent with previous research on the role of social relationships in CAM use, the NICAM clients were more likely than the ECAM clients to report that they used CAM because of the recommendations of friends and family members, and the conventional medicine clients indicated that they might try CAM if someone trusted recommended CAM. According to the consumer decision-making model (Kanuk & Schiffman, 2000), in the absence of previous experience with CAM, individuals may rely on these personal sources during their pre-use search for information about alternatives to conventional health-care such as CAM. Although qualitative investigations have proposed a more linear decision path beginning with the testimonials of others (Caspi et al., 2004), the consumer decision-making model suggests that this external information may only be "sourced" when more salient needs for considering alternatives arise. Our findings indicate that the experience of distressing symptoms and dissatisfaction with aspects of conventional care may reflect such needs.

Other aspects of the socio-cultural environment, such as education and gender, were not implicated as decision factors for initial CAM use when the conventional medicine clients were compared to the NICAM clients. Although this finding is in contrast to other CAM studies (Astin, 1998; Barnes, et al., 2004), it is consistent with the assertion that the growing popularity of CAM may mean that its use is no longer limited to those segments of the population with a higher education and income (Boon et al., 2003b).

Although it was anticipated that medical need and the perception of that need would be decision factors for initial CAM use, we found that symptom severity was the only independent factor associated with initial and infrequent CAM use. The role of this decision factor is perhaps

best understood from the consumer decision-making perspective. First, this model suggests that psychological factors such as perception and motivation influence the recognition of need. Thus, it is not simply the presence of symptoms, but the associated physical distress and the motivation to alleviate that distress that heightens the need for finding effective health-care. Second, this model implies that the perception of need does not function in isolation to determine the choice of health-care, but operates as part of a process with other factors in a cyclic rather than linear, sequential manner. For example, experiencing greater distress from one's health problems may indicate a greater quantity of care-seeking, but on its own reveals little about the type of health-care modality chosen. That is, patients may be motivated to seek multiple opinions from conventional care providers, or they may seek care from CAM providers in addition to conventional care, as many studies on CAM use suggest (Druss & Rosenheck, 1999; Sirois & Gick, 2002). From the perspective of the consumer-decision-making model, greater physical distress may prompt the decision to try CAM when it is considered in combination with dissatisfaction with the technical quality of conventional treatments and positive testimonials about CAM from trusted relationships.

Limited support was found for the proposed *congruency hypothesis,* the idea that individuals may initially use CAM because of a perceived congruency between their own expectations for care and how they expect to be treated by CAM providers. An egalitarian-provider role preference was associated with initial/infrequent CAM use, although the significance was marginal. It is possible that this weaker preference may be due to the NICAM clients' limited experience with CAM providers, and therefore their greater reliance on the testimonials of friends and family who have used and recommend CAM. However, this finding is consistent with other studies suggesting that CAM users prefer a more patient-centered style

from their health-care providers (Richardson, 2004; Swenson et al., 2004), and that CAM

providers are rated higher than conventional medicine providers on listening skills, care,

concern, and patient empowerment (Shinto et al., 2005).

Decision factors for established CAM use

When the NICAM clients were compared to the ECAM clients, only two decision factors

differentiated the CAM groups: not being under the age of 25 (external influence), and having a

preference for an egalitarian-provider role (decision process factor). The former finding is

consistent with research suggesting that CAM use is highest among individuals aged 25 to 49

(Eisenberg et al., 1998). The latter finding provides some support for the *reciprocal-influence*

hypothesis - that an egalitarian role preference may develop with CAM provider experiences and

subsequently influence the decision for long-term CAM use. According to the consumer

decision-making model, consumers' (i.e., *patients'*) experience with a service influences both

attitudes and subsequent perceptions of need regarding that service (Kanuk & Schiffman, 2000).

For NICAM clients, limited experience with CAM providers may mean a weaker preference for

a patient-centered provider as was found in the present study. It is possible that with more

experience with CAM providers, egalitarian-provider relationship preferences develop and are

reinforced through satisfactory encounters with CAM providers. Although the research design of

the current study did not allow for a full testing of this proposition, this speculative explanation

is in accord with one qualitative investigation which found that commitment to continued CAM

use develops mainly from positive experiences such as a caring, empowering relationship with

the CAM provider (Luff & Thomas, 2000).

Limitations

The conclusions regarding the decision factors associated with initial/infrequent and

established provider-based CAM use are limited by the cross-sectional design of this study. Although the *reciprocal-influence hypothesis* regarding CAM experience and egalitarian-provider role preferences fits well within the context of the consumer decision-making model, following CAM clients over time would provide more definitive support for this explanation of the study findings. It is also possible that our sample may not be representative of all CAM clients. The majority of the CAM clients used chiropractic or massage therapy, CAM modalities which are considered more mainstream. Thus, the decision factors found in the current study may not apply to more diverse CAM client samples.

Other limitations involve the decision factors examined. Because this study focused on provider-based CAM, the factors related to the emotional and interactive aspects of care are likely not as salient for self-care CAM decisions. Although the choice of decision factors was guided by previous qualitative investigations and a consumer decision-making perspective, other factors such as holistic health beliefs may also be key for initial and long-term CAM use. There is limited research on the decision factors that influence long-term CAM use and the possible reciprocal effects of CAM experiences on these factors, despite the suggestion by CAM researchers that such relationships are likely (Sirois & Gick, 2002; Vincent & Furnham, 1996). Our findings concur with this suggestion and further indicate that this may be a fruitful area for future research.

Conclusions and implications

To the best of our knowledge, this is the first study to explicitly apply the consumer decision-making model (Kanuk & Schiffman, 2000) as a conceptual framework for understanding the factors associated with initial and long-term use of provider-based CAM. In doing so, this study extends previous work on CAM decisions and motivations by not only

examining the factors for initial and long-term separately, but also by taking a step towards advancing theory for understanding these decisions in an area which has been predominately atheoretical. Although by no means does this study provide an exhaustive test of the various decision processes and paths suggested by this model, it does provide a preliminary glimpse of the possible decision paths of two distinct CAM client groups. Based on this model, our findings suggest that dissatisfaction with the technical quality and effectiveness of conventional medicine combined with distressing symptoms may prompt the decision to try other health-care modalities such as CAM. This may initiate a search for information about alternatives that results in seeking or recalling recommendations from trusted social contacts about provider-based CAM, and a decision to try CAM, especially if an egalitarian-provider role is preferred. Our findings also present some support for a reciprocal-influence hypothesis, and suggest that an egalitarian-provider role preference may also be a product of experiences with CAM providers.

Overall, the current study provides preliminary support for the utility of the consumer decision-making model as an integrative theoretical framework for understanding the role of various correlates of CAM use in different CAM decisions. Because it has been noted that there is variation in the determinants of different CAM modalities (Hendrickson, Zollinger, & McCleary, 2006), we propose that this model provides an appropriate and potentially valuable lens from which to organize and understand the interplay of the various factors involved in different CAM decisions. Future investigations with this model are needed to further our understanding of CAM related decisions and motivations for different CAM modalities and for specific health problems.

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Table 1. *Demographic Characteristics of the Three Client Groups.*

	Client Group		
	Conventional medicine	New/Infrequent CAM	Established CAM
N	54	73	112
Sex (% female)	77.8	82.2	83.9
Age			
Mean (SD)	37.98 (18.08)	39.23 (14.53)	42.84 (12.98)
Range	18-80	15-77	19-86
Ethnicity (% Caucasian)	92.5	91.8	95.5
Employment status (%)			
Full-time	50.0	49.3	56.3
Part-time	24.1	15.1	17.0
Unemployed/retired	20.4	27.4	20.5
Disabled	5.6	8.2	6.3
Education (%)			
High school or less	20.4	21.9	25.0
College/University	64.8	67.1	65.2
Graduate school	14.8	11.0	9.8
Relationship status (%)			
Married	57.4	55.6	68.8
Separated/Divorced/Widowed	11.1	19.4	15.2
Never married	31.5	25.0	16.1

Table 2. *One-way ANOVA Results for the Effect of Client Group on Physician Satisfaction Questionnaire (PSQ) Subscales.*

		Client group means (*SD*)			
		Conventional	New/infrequent	Established	
PSQ subscale	Scale alpha	medicine	CAM	CAM	*F* (2, 236)
	(# items)	(*n* = 54)	(*n* = 73)	(*n* = 112)	
General satisfaction	.64 (2)	3.08 (0.86)	2.69 (1.01)	2.73 (0.92)	3.28*
Technical quality	.70 (4)	3.23 (0.72)	2.81 (0.79)	2.72 (0.78)	8.20***
Communication	.50 (2)	3.26 (0.89)	3.15 (0.88)	2.91 (0.88)	3.47*
Accessibility	.75 (4)	3.06 (0.91)	2.72 (0.96)	2.72 (0.95)	2.69
Interpersonal	.65 (2)	3.81 (0.81)	3.44 (0.95)	3.63 (0.85)	2.85
Time	.77 (2)	2.84 (1.07)	2.72 (0.94)	2.79 (1.04)	0.24
Total satisfaction score	.91 (16)	3.20 (0.70)	2.88 (0.76)	2.86 (0.72)	4.16**

*$p < .05$; ** $p < .01$; *** $p < .0001$.

Table 3. *Adjusted Odds Ratio Predicting Client Group.*

	Client group			
	Conventional medicine (vs. new/infrequent CAM)		Established CAM (vs. new/infrequent CAM)	
Variable	Adjusted odds ratio	95% CI	Adjusted odds ratio	95% CI
Education				
High school or less	0.46	0.11 - 1.93	2.00	0.61 - 6.59
College/university	0.50	0.14 - 1.72	1.49	0.52 - 4.32
Age				
< 25	1.07	0.29 - 4.01	0.18**	0.05 - 0.71
25-35	1.00	0.30 - 3.34	0.93	0.33 - 2.61
36-55	0.34	0.10 - 1.13	0.84	0.33 - 2.15
BAHPS mean	1.94[a]	0.97 - 3.87	0.51*	0.30 - 0.86
PSQ technical quality	1.86*	1.06 - 3.24	0.82	0.53 - 1.25
Chronic illness severity	0.60**	0.43 - 0.84	0.82	0.62 - 1.09

Note. Reference categories are individuals aged > 56 years and graduate school education. CI = confidence intervals for odds ratio; BAHPS = Beliefs about health professionals scale; PSQ = Patient satisfaction questionnaire

[a]*p* =.06, **p* <.05, ***p* <.01