Alternative Medicine: Definition, Scope and Challenges

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INTRODUCTION

In the United States and worldwide, the use of "complementary" and "alternative" medicine is increasing, and has resulted in major non-reimbursed medical or health-related consumer expenditures. Although the term "complementary and alternative medicine" ("CAM") has been largely adopted by the American academic community, there are also several possible other terms, such as alternative medicine (AM), integrative, unconventional, soft, parallel, etc. We feel that none of them is satisfactory. We will arbitrarily use the term alternative medicine (or AM) throughout, as we imply that many of these practices as they exist in the US today are derived from traditional systems from other cultures. We will use the word "traditional" to refer to age-old cultural practices, and "conventional" to refer to practices of Western biomedicine. At present the public and the scientific community only partially understand why the use of these practices and products is increasing so rapidly. Alternative medicine, much of which derives from the world's traditional medical systems (i.e., non-Western, non-biomedical systems), is poorly defined and under-researched. We propose a new definition, as well as to examine some of the many factors that have been impacting — whether stimulating or impeding — progress in defining and investigating alternative and traditional medicine. To speed up that progress, we also propose some possible programmatic solutions that are being initiated at the Rosenthal Center for Complementary and Alternative Medicine, Columbia University College of Physicians and Surgeons, US.

BACKGROUND: ALTERNATIVE MEDICINE IN THE UNITED STATES

The current interest in alternative medicine (AM) in the US stems from the growing use of these practices by Americans. In the US, private insurance companies largely cover healthcare costs, and subscribers' medical expenses are reimbursed in varying degrees by health insurance, depending on their plans' policies. Reimbursement usually covers the accepted standard of care. Therefore, AM is, by definition, not covered by these plans, and must be paid out of pocket. Various surveys and reports have indicated that the non-reimbursed cost associated with use of AM in the US has considerably increased from US$14 billion in 1990 to US$21 billion in 1998, a figure considerably higher than that of all non-reimbursed conventional healthcare expenses. This confirms a trend of increasing use of AM that was already suspected as early as the 1980s. Reflecting this interest of the American public in alternative medical care, the American Congress, in October 1991, instructed the National Institutes of Health (NIH), the premier medical research institution in the nation, to create an office to "investigate and validate unconventional medical practices." In 1993, that office was renamed "Office of Alternative Medicine," and in October 1998, it was elevated to the rank of a NIH Center — the National Center for Complementary and Alternative Medicine (NCCAM).

CURRENT DEFINITION OF ALTERNATIVE MEDICINE

Despite the increasing use of and attention paid to AM worldwide, no accepted definition of this term has been
established thus far. The importance of explicit or implicit
definitions currently in use has been underestimated, in
that they define the scope of AM for the lay and
professional public, and bias the mindset for approaching
this varied and complex field. We also contend here that
the “why AM” is essential to defining “what is AM.” Why
is there a field of AM in our ever-shrinking world, when
the once-distant cultures that gave birth to most AM are
now familiar to most? Why, also, is there AM in the context
of dispassionate science, which should in theory be open
to examining any worthwhile phenomenon, instead of
dismissing them at the outset? Shouldn’t one expect that
the best possible therapies would be available to patients,
regardless of what they are or where they come from?
Why have entire age-old systems of health been ignored
by biomedical science?

Existing definitions of AM are unsatisfactory, in part
because they fail to address the fundamental issue of why
they are “alternative,” and because they fail to take into
account diverse fundamental characteristics of AM, which
should be part of any definition. For example, many
healthcare practices are labeled “alternative” because it is
felt that there is a lack of relevant, good quality scientific
research to substantiate claims of efficacy.9,10 However, issues
beyond the scientific appear to be involved, if one considers
that it required Congressional intervention for the US
National Institutes of Health (NIH) to earmark 0.02 percent
(US$2 million) of its US$10.7 billion 1992 budget to
evaluate practices used by more than 35 percent of the
American population11,12.

To provide a rational definition of alternative medicine, it is clearly
necessary to identify common traits of these very disparate practices.

Some of the current definitions are pragmatic, and consist
of ad hoc lists of disparate practices deemed alternative:
entire complex traditional healthcare systems (e.g.,
traditional Chinese Medicine), east Indian (Ayurveda),
native American),5,13 their components practiced as distinct
complementary entities (e.g., medicinal herbs, acupuncture,
dietary principles, spiritual practices); and also a wide
variety of difficult-to-categorize discrete modalities and
products. Furthermore, among the proponents of practices
such as hypnosis, osteopathy, and chiropractic (taught in
the US by degree-granting institutions for more than a
century), there is little consensus as to whether these
modalities are alternative or mainstream.

The few attempts at conceptual definitions identify
alternative medicine as what is not conventional, e.g., what
is not covered by insurance, or is not taught in medical
schools.15 These definitions also have drawbacks, as
reference criteria are changing rapidly and are not consistent
worldwide (nor even across the US). Health insurance
coverage for alternative practices varies widely among
countries, and regionally within many countries. For
example, homeopathic medicines have been reimbursed
by the French national healthcare insurance for decades,
while in other countries they are not. In Germany, medical
doctors can prescribe herbal medicines like pharmaceutical
drugs, while in France botanical medicine is not covered.

In the US, great regional variation exists in the pattern of
reimbursement for alternative forms of care, and most are
not yet covered. In some countries (e.g., France) only
physicians can legally practice any kind of medicine
(including osteopathy, acupuncture, homeopathy), while in
other countries (e.g., Great Britain, Germany) these same
disciplines can be practiced by individuals who are not
conventional physicians. Within the US, some 75 or so
medical schools offer courses in AM. Most of these courses
are elective, and a few are now compulsory, and their
curriculum varies widely.14,15

PROPOSED DEFINITION OF ALTERNATIVE
MEDICINE

To provide a rational definition of alternative medicine,
it is clearly necessary to identify common traits of these
very disparate practices. Most of what falls under the scope
of alternative medicine have their origins in traditional
systems of health. It is apparent that some kind of
spirituality is an integral part of most traditional systems
of health,5,13,16-19 a trait often directly related to the dominant
religion or philosophical system of the originating culture.
In contrast, for biomedicine, spiritual aspects are often
deemed peripheral to health promotion. This position of
biomedicine is congruent with the observation that
spirituality or holistic philosophies are among the major
reasons for the growth of alternative medicine in the West.5

Based on a number of observations, we have proposed
that alternative medicine may well be defined as a broad
set of healthcare practices (i.e., already available to the
public) that are not readily integrated into the dominant
healthcare model, because they pose challenges to diverse
societal beliefs and practices (cultural, economic, scientific,
medical and educational).19

Theoretically, this definition could apply to any
healthcare practice imported into a foreign country. As
expected, it applies well to traditional systems of health imported into the West. However, less predictably, it also applies to the categorization of these systems practiced in countries that have adopted Western values. For example, traditional Chinese medicine (TCM) would be expected to be mainstream in countries where there is a substantial Chinese population. Yet in Singapore, for example, whose population is close to 80 percent Chinese, traditional Chinese medicine is “alternative.” This is because in Singapore, which has adopted Western values and lifestyles, TCM poses challenges at all the levels mentioned above, except the cultural one.

As a possible counter example, Ayurveda could theoretically be considered alternative by TCM practitioners and vice versa. However, both healthcare systems are based on the concept of energy (“Qi” in TCM, “Prana” in Ayurveda). In addition, both systems are holistic and the respective multifaceted treatments include reestablishing a balance, dietary considerations, exercise, and use of medicinal plants. Therefore, the fundamental differences between the two systems may be small enough that the “challenges” presented by one system to the other are only mild or virtually non-existent.

FACTORS POSING CHALLENGES TO INTEGRATION OF ALTERNATIVE MEDICINE

Based on our definition, it is precisely because practices have some traits that make them “alternative” that they have not been studied, are not used in hospitals or taught in medical schools, and are not reimbursed by healthcare insurance companies, and not vice versa, as is implied in the current definitions of AM. As asserted above, the requirements of science are not the only reason why AM is deemed “alternative.” A number of other factors have played a role, either to keep these practices out of mainstream healthcare or, on the contrary, to draw attention to them, and encourage considering them as potential therapeutic options. Below, we discuss briefly political, economic, scientific and social factors influencing understanding and integration of AM.

Political and regulatory factors

The interaction of politics and healthcare is extensive, complex, and inevitable because healthcare is such a fundamental aspect of national economies, and because individual and population health status must be addressed.

For example, political interventions, as suggested above, have played a significant role in AM’s recent development in the US. In October 1991, the US Congress directed the NIH to create an Office of Unconventional Medical Practices. This was met with a less-than-enthusiastic response from this government agency, but simultaneously, with high public expectations. The public and congress have consistently put pressure on the Office of Alternative Medicine (now the NCCAM) to fulfill its mandate, while the NIH has been reluctant to progress too fast in a field that it does not consider “scientific.”

In most countries, politics are similarly involved at some level of the development of alternative or traditional medicine. For example, in the People’s Republic of China, the Chinese Administration of Traditional Chinese Medicine is under the authority of the Chinese Ministry of Health. The Chinese government has been active in guiding the modernization of technological and scientific approaches to TCM. This has brought much better standards to the quality control of TCM botanical medicine preparations so that they can enter the international market and compete effectively with other botanical medicine preparations, in particular those from Europe.

On the other hand, in Singapore, where scientific biomedicine is the standard of care, the government has only recently expressed interest in acupuncture, and only in the context of scientifically documenting that therapy’s effectiveness prior to allowing its official use.

This process also drew attention to the fact that TCM was being used by approximately half the population and practiced by a significant number of practitioners, while there were no regulations, neither for practitioner qualification nor to ensure quality of the products.

Regulatory issues are a subset of political issues, as regulations are a product of government agencies. In the US, the Food and Drug Administration (FDA) oversees products and devices used in the practice of medicine. For complex political and legal reasons too long to detail here, botanical medicines and dietary supplements have become essentially unregulated. They need not meet quality-control standards, and significant information need not be provided on the packaging of these products, which may put the public at risk.

It is difficult to apply to alternative medical products the same regulations as those applied to biomedical products and devices, in particular to those used in traditional practices from other cultures. The lack of appropriate US regulations for alternative medical products reflects this difficulty. There are several reasons for this. For example, many traditional practices follow different diagnostic classifications compare to biomedicine. In addition, the complex substances (e.g., botanical, animal products) they use cannot easily meet the criteria established for essentially pure drugs, or even for conventional biologics. However, recently, the FDA has begun addressing the issues posed by AM product...
evaluation. In particular, FDA representatives actively participated in the organization of two conferences that addressed the special considerations of acupuncture25 and of botanical medicines.26

Economic factors

In most countries, the economic potential of growing AM markets has meant that much business and research interest in AM to date has been focused on specific techniques and products that can be marketed. On the other hand, the “healthcare industry,” or even academia, have rarely paid attention to conceptual and philosophical principles on which the use of those products and techniques are based. This trend is even reflected in government-sponsored research.

In countries like Peru, the government’s interest in traditional medicine began mostly in the context of providing affordable healthcare for indigenous populations, for example, in the Amazon basin where most people are too poor to afford costly Western medicine, and too remote to have access to it. However, in these countries also, the new interest in specific products (e.g., “cat’s claw,” “camu-camu” and “sangre de grado”) by the herbal medicine industry is beginning to create incentives other than those of affordable and accessible healthcare for the indigenous populations. These new economic incentives may be counter-productive: they may endanger both the survival of the plant species and, consequently, the health of the indigenous populations, because they encourage an economically needy population to over-harvest (perhaps to extinction) plants on which they may need to rely on for their own health.

In China, the government has launched a program implementing schedules for the development of new TCM “products.” Government and academic representatives have visited the US to indicate their eagerness to collaborate and to follow proper methodology (e.g. double blind randomized clinical trials (RCT)). Recently, at such a meeting, it was recognized that traditional Chinese “medicine” should be distinguished from TCM “products.”

In the US, the “healthcare industry,” as the major players define it, is one of the most lucrative American enterprises. As documented in several recent reports,17 a large proportion of the American population use alternative medicine and therefore constitutes a considerable potential market in the US. Consequently, alternative practices and products that had been shunned by the traditional healthcare industry are becoming an increasingly promoted feature of American healthcare packages, from healthcare maintenance organizations to hospitals, including academically affiliated ones. In 1999, two major “first of their kind” conferences were held, co-sponsored by academic medical center AM units and private “integrative medicine” entities, to educate not so much professionals and researchers, but mostly hospital, HMO, and insurance executives and administrators about how to integrate AM practices and products into their institutions and services.27,28 It is laudable that a wider community will become informed, but will the adoption of “complementary care,” as it is sometimes called, truly lead to changes in the practice of medicine? The fact that the NCCAM is beginning to sponsor a few large clinical trials (e.g., St. John’s wort for the treatment of depression, glucosamine for the treatment of arthritis), also stresses an emphasis on products and disease rather than on conceptual and philosophical approaches to maintaining health.

The large and rapidly growing market for AM has created the potential for substantial financial gain, but a quick “pay off” may yield research of poor quality, and perpetuate research only aimed at narrowly evaluating products’ effectiveness. While it is important to conduct such research, this may also lead to botanical medicine being used in the same manner as conventional drugs, as “magic bullets” for the treatment of specific medical conditions. However, because whole plants themselves are difficult to patent, there is strong financial incentive to attempt to identify active ingredients only, or at least standardized and relatively purified ones, whereas a well-rounded regimen of botanical medicine may involve whole plants and/or combinations thereof. Study of other benefits to be derived from traditional systems of health must go hand-in-hand with botanical and other product development.

Finally, we have additional reasons to want to explore options other than “magic bullet” drugs. Frequent reports now sound the alarm about our escalating, critical problem with drug interactions.29-31 In the West in particular, more people take more “magic bullets” than ever before, in part because many older people have chronic ills requiring many medications. We must understand other routes to creation and maintenance of health with diminished reliance on polypharmacy.
Scientific factors

Science is not a field of study but a method of observation that must be tailored to the object (or phenomenon) being studied. In this context, any phenomenon may be worthy of study, provided there is a phenomenon to study. Many factors can determine whether an area is worthy of study — for example, potential scientific significance of positive or even negative findings; strength of evidence to date; theoretical or methodological “hot topics”; technological impediments or breakthroughs; societal or scientific needs or biases. Scientists largely investigate within constraints of available funding, but it is also the responsibility of the scientific community to be mindful of the above issues. Scientists must also tailor the means of observation (the scientific method) to the subject, rather than a standard method of observation and then try to fit the object of study within the method that may deform (sometimes beyond recognition) the subject being studied.

In general there are many methodological approaches to the study of alternative or traditional medicine, and there is no restriction as to which one can be used. However, one must be very careful about the interpretation and extrapolation of results. For example, a number of double blind studies have been conducted on acupuncture for nausea, using a single point, “Pericardium 6” (P6).\(^9,10\) This series of generally well-designed studies has indicated that the stimulation by a needle of a traditional acupoint (P6) can affect a centrally controlled symptom (nausea), and that this effect is specific since needling of another point does not have any effect. Thus, these results give credence to the basic premise of acupuncture. However, in our opinion, this series of studies does not evaluate the effectiveness of acupuncture, as, in most instances, acupuncturists would not needle a single point, regardless of other accompanying signs and symptoms.

While science claims to be dispassionate, many scientists have become polarized around the issue of alternative medicine. For decades, Western academia has excluded research and practice in areas identified with AM, and has shunned those who dared defy the status quo. This opposition has contributed substantially to the paucity of data in this area. For example, in the US, established academics have been discredited and have had difficulties when attempting to do AM research,\(^9,10\) and at times, explicit threats were made by mainstream medicine to individuals and institutions that would advocate alternative practitioners,\(^9\) or who would do research in areas identified as alternative.\(^8,13\) Consequently, most AM research is conducted outside of academia by individuals with limited research training and resources, and their investigations are often methodologically inadequate.\(^9,10\) Conversely, those AM studies deemed methodologically sound may lack comparability and replicability. For example, lack of funding and differences among individual investigators’ resources and personal research interests have limited replication of hundreds of studies in homeopathy and acupuncture.\(^9,10\)

In summary, we believe that the scientific method can and must be applied to the study of traditional medicine. However, we believe that the blind application of methodologies designed for other purposes and circumstances is poor science.

Possible Solutions

Here we have presented and clarified factors that impact in different ways alternative and traditional medicine as compared to biomedicine. To begin addressing many of these issues, we have designed a research program that will encompass the following issues:

- **There is a commonality among various traditional systems of health, all of which describe a spiritual and “energy” basis for biological mechanisms. We propose to evaluate the physical and biological effects of non-molecular interactions.**

- **There is great variety among alternative and traditional therapies, which include a variety of different health systems, some of which may be as complex as biomedicine itself. We propose to examine and evaluate the health benefits and economic impact of improved access to indigenous medicine by whole populations.**

- **Many traditional medical treatments are holistic and multifaceted. We are currently conducting an observational study on the effectiveness of a traditional health system approach to Irritable Bowel Syndrome (IBS). In this project, the practitioner will have no other constraints than to recruit suitable patients and accurately record the treatment.**

- **Each health system reflects the beliefs and philosophical systems of the culture from which it evolved. We are incorporating these considerations in Continuing Medical Education (CME) courses and other curricula designed for the healthcare professional. Furthermore, we plan to develop a school curriculum beginning in early childhood.**

- **Much of the healthcare system is driven by profit motives. We feel it is important to develop a project that will investigate and advance activities and outcomes other than consumption of medical goods as a basis for reimbursement.**

We believe that such programs, if clearly and decisively coordinated, could have a profound impact on worldwide healthcare because the various facets of such programs...
touch upon the essence of the differences between traditional systems of health and biomedicine, not only from the medical, but also from cultural and values-based standpoints.

CONCLUSIONS

In the US and throughout the world, many non-scientific factors contribute to defining AM scope and the context for its evaluation. Therefore, to reach optimal integration, it is critical to take into account those many factors. For example, it is important to improve academic freedom for investigators to explore the variety of traditional medical systems, even if the principles they study seem to be difficult to reconcile with conventional biomedicine, at present. There is a welcome change in this direction as a result of the NIH having funded 11 (now 13) academic centers dedicated to AM assessment at major US institutions. On the other hand, the alternative community should refrain from uncritical and premature enthusiasm for experimental results and theoretical implications that have not yet been thoroughly evaluated. While building of theoretical models is intrinsic to the development of science, it is important to accumulate sufficient information and knowledge on the observed phenomena, based on solidly confirmed observations, instead of prematurely proposing hypothetical mechanisms.

The effort to take advantage of both alternative or traditional healthcare and mainstream Western medicine should be seen as a great opportunity, provided that the conceptual frameworks of systems are also taken into account along with the techniques and products used by these systems. Worldwide, we have the opportunity to research, understand and mobilize a wider range of therapies, to individualize clinical approaches, a trend seen by some as intrinsically medically worthwhile. Finally, such diversity of potential therapies and practices could result in more effective healthcare approaches, tailored to local or personal constraints as well as preferences, and to improved functioning of the medical, economic, political and social infrastructures as they impact on healthcare.

In this time of great scientific and medical opportunity and change, great economic promise exists in the growing markets derived from the increased use of alternative as well as high tech medicine. We hope that beyond a focus on developing profitable AM products, there will also be an abiding interest in improving world healthcare, and understanding and addressing the underlying issues that have prompted the public to seek AM practices, based on a clearer conceptualization of the nature and role of those therapies currently deemed alternative. We believe that all non-scientific and scientific factors that are shaping this unusually heterogeneous and potentially fruitful field must be taken into account for a thoughtful evaluation to yield more than incremental progress, and for all nations to join in building improved healthcare as well as fueling their economic progress.

Acknowledgment

The authors thank Reba M. Goodman, Ph.D., and Christine Wade for their thoughtful comments and suggestions.

References


28. Stanford University, Center for Research in Disease Prevention, School of Medicine; and Beth Israel Deaconess Medical Center (affiliated, Harvard Medical School), Boston, MA, Center for Alternative Medicine Research and Education. First Annual Conference. Complementary and Alternative Medicine: Practical Applications and Evaluations. October 15-17, 1999. San Francisco, CA.


38. Office of Alternative Medicine Home Page, Core CAM Presentations, Slide # 42. Centers (http://altmed.od.nih.gov/cam/resources/present/cam-core/)