Modern Western Science as a Standard for Traditional Chinese Medicine: A Critical Appraisal

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It is generally recognized that China, while attempting to develop modern scientific medicine in carrying out its national policy for modernization, has also made significant efforts to integrate traditional Chinese medicine into its health care system. For instance, the World Health Organization's first global strategy on traditional and alternative medicine (released in May 2002) lists China as one of only four of its member states to have attained an integrative health care system.[1] However, medical integration can take many different forms and involve quite different health care standards.[2] A health care standard is a set of mechanisms by which distinct diagnostic and therapeutic practices and products are validated or accredited for use in health care delivery. Traditional Chinese medicine and modern scientific medicine adopt different sets of such mechanisms and thereby engage different health care standards. Accordingly, in appraising the Chinese integrative health care system, it is important to investigate which health care standard has been appealed to. Given that the modern scientific medical standard is generally a modern Western scientific standard, should we simply approve this standard as canonical in guiding and regulating medical integration without the need of further exploration?

This article demonstrates that the Chinese medical integration has been a monostandard integration — it has been made primarily under a health care standard provided by modern Western medical science. The article argues that this monostandard is inappropriate for an integrative health care system, failing to promote and develop traditional Chinese medicine as the Chinese had hoped. Traditional Chinese medicine dramatically differs from modern scientific medicine in its basic medical orientation, physiological theories, etiology, diagnostics, therapeutics, and pharmacology. For instance, while modern scientific medicine views the essence of illness as anatomicopathological, traditional Chinese medicine views it as symptom-complex (*zheng*) of the whole body. While scientific medicine identifies the sources of illness as disease entities, Chinese medicine identifies them as imbalanced climate and/or emotional factors. While scientific medicine uses advanced lab and mechanical investigations as diagnostic means, Chinese medicine uses ordinary contacts (looking, smelling, asking, and feeling) to locate problems. While scientific medicine emphasizes pathological anatomy, Chinese medicine focuses on the patient's complaint and actual experience of being sick. While scientific medicine aims at curing diseases, Chinese medicine appeals to balancing functional factors. While scientific medicine employs chemical drugs or surgeries, Chinese medicine appeals to natural herbs or simple needles.

Given all these differences, it is a real issue to the Chinese integrative health care system to decide how to evaluate these different mechanisms and elements involved in medical practice, education, and research. This article indicates that, by using modern Western science as the standard, traditional Chinese medicine has inevitably been marginalized in the Chinese medical integration no matter how much effort has been made to preserve it.

The next section lays out the current size of traditional Chinese medicine in the People's Republic of China and its hidden crises under the monostandard. Following this is an explanation of how the Chinese came to adopt the monostandard in the twentieth century, bringing about the current crises. The article then argues why we should move to a dual standard, where modern scientific medicine is evaluated and developed according to a modern scientific standard, and traditional Chinese medicine is allowed to be evaluated and developed in terms of its own standard.

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Apparent Prosperity and Hidden Crises

Traditional Chinese medicine is apparently prosperous in contemporary China.[3] The government has always paid remarkable attention to it since its establishment in 1949 and, since the 1980s, has also attempted to regulate it by law. Article 21 of the Constitution of the People's Republic of China (promulgated in 1982) stipulates that "the state develops both modern medicine and traditional Chinese medicine." A series of newly legislated laws and regulations also include particular articles regarding traditional Chinese medicine and its medicinal materials, such as the Pharmaceutical Administration Law (1984, 2001), Regulations on the Management of Protection of Resources of Wild Medicinal Materials (1987), Law of the People's Republic of China on the Protection of Wildlife (1988), Regulations on the Protection of Varieties of the Traditional Chinese Medicines (1992), Regulations on the Administration of Medical Institutions (1994), and Law of the People's Republic of China on Qualified Doctors in Practice (1998). Following these laws and ordinances, administrative sectors issued concrete procedures and methods to regulate traditional Chinese medicine, such as specific stipulations regarding how to regulate already existent and newly developed drugs, and how to organize exams for and license traditional Chinese medical practitioners. Many provincial governments also made specific local laws to regulate traditional Chinese medicine in their areas. Each province, autonomous region, or municipality has a particular administrative office to manage traditional Chinese medicine, in addition to there being a national managing agency at the highest level, the State Administration of Traditional Chinese Medicine set up in 1986 (which is generally independent of the Ministry of Health that manages modern scientific medicine, among other things).

In 2001, there were 2,682 traditional Chinese medical hospitals in mainland China, with 279,622 beds in them. Medical professionals working in these institutions totaled 436,848, among which were 79,959 traditional Chinese medical physicians, 3,518 integrated physicians, 32,844 traditional Chinese medical pharmacists, and 351,673 general health care technicians. In comparison, according to the information offered by the Ministry of Health, in 2001, there were a total of 16,781 hospitals in mainland China, with 2,229,601 beds and 5,583,932 staff.[4] This is to say, in 2001, traditional Chinese medicine represented about 16 percent of the hospitals, 12.5 percent of the hospital beds, and 8 percent of the total health care staff in China.

For education, there are thirty higher learning institutions of traditional Chinese medicine (including three national minority medical colleges) in mainland China, such as the most famous, Beijing University of Chinese Medicine. In 2001, these schools boasted 83,239 students (including 4,729 in the masters program and 1,232 in the Ph.D. program), of which 8,951 graduated that year. Twenty of these institutions accept foreign and overseas Chinese students, including those from Hong Kong, Macao, and Taiwan; and twenty-seven have set up long distance learning programs. In addition, special departments or programs of traditional Chinese medicine exist in twenty-two other medical and agricultural universities/colleges.

For research, there were ninety-four traditional Chinese medicine research institutions in mainland China in 2001, including nine institutes belonging to the Academy of Traditional Chinese Medicine at the national level. The research staff totaled 8,193. Currently, six research programs on traditional Chinese medicine are listed as the key subjects at the national level. The research projects "Basic Research of Key Problems in the Modernization of Chinese Pharmacy" and "Study of Channels (*jing-luo*)" were the key projects in the Ninth Five-Year Plan of China (1996–2000). From 1978 to 1994, more than 500 achievements in traditional Chinese medical research won national scientific and technological progress prizes, and over twenty items won international prizes.

China's turn toward a market economy has brought unprecedented opportunities and development to the industry of Chinese herbal medicines. China, with more than 5,000 medicinal herbs determined, is rich in medicinal resources. Currently, there are over 600 bases, with about 5 million *mu* of land, producing medicinal materials, with an annual output of approximately 400,000 tons. There are 684 Chinese pharmaceutical factories for herbal medicines, producing more than 4,000 patented Chinese herbal medicines in over forty drug forms. In 1997, the total value of this industry in China was estimated to reach 27.9 billion *yuan*. In 1995, there were more than 30,000 wholesale and retail shops for herbal medicines all over China, with a total sales value of 13.39 billion *yuan*.

Although traditional Chinese medicine seems to be flourishing in contemporary China, it is suffering under the monostandard for health care.[5] Integration has proven a very complicated concept in China. During the 1950s–1970s, integration primarily meant Mao's aspiration that every Chinese medical doctor engage both modern scientific medicine and traditional Chinese medicine in his practice in order to create a new, unified medicine. This ideal has been diluted since Mao's death; modern scientific medical physicians are no longer pushed to learn and practice traditional Chinese medicine. However, the monostandard of science has been strengthened even more than before in evaluating, exploiting, and developing traditional Chinese medicine. China's integrative health care system is not a system in which both modern scientific medicine and traditional Chinese medicine have equal status and functions. Rather, emphasis has always been placed on traditional Chinese medicine to use modern science and technology to make and promote itself as more "scientific." This political ethos has caused a series of problems for traditional Chinese medicine.

In education, instead of focusing on traditional Chinese medical classics, theories, and techniques, traditional Chi-

nese medical universities and colleges have invested increasing time and resources in teaching modern scientific medicine as well as related scientific theories and technologies. Graduates from such universities and colleges have, in turn, growing capacities for conducting modern scientific medicine rather than traditional Chinese medicine, and some graduates simply practice modern scientific medicine after graduation. In research, graduate students in the field of traditional Chinese medicine tend to choose more "scientific" topics for their theses and look for more "scientific" scholars as their supervisors. All this, in turn, tarnishes the attraction of traditional Chinese medical universities and research institutes. Outstanding students tend to apply to the universities and research institutes that specialize in modern scientific medicine.

In clinical practice, traditional Chinese medical hospitals have equipped themselves with all kinds of modern Western diagnostic and therapeutic facilities in order to "scientificize" themselves and compete with modern scientific medical hospitals. These hospitals are also highly specialized and divided into different departments according to the modern scientific medical standard. Such highly specialized division is not beneficial to traditional Chinese medical physicians, especially young physicians, because it prevents them from developing the capacity to experience and identify the symptom-complexes (*zheng*) of various patients according to traditional Chinese medical theories.

When patients visit a traditional Chinese medical hospital in China today, they find little to distinguish it from a modern scientific medical hospital. Although it is named one thing, it does whatever a modern scientific medical hospital does. Perhaps the only difference is that the patient will receive some traditional Chinese medicines for treatment in addition to the conventional modern medical drugs prescribed. According to a current Chinese slang, the typical traditional Chinese medical physician today is a traditional Chinese physician during the day, a modern Western physician at night; a traditional Chinese physician at the clinic, a modern Western physician in the hospital. This is to say, traditional Chinese medical physicians mainly appeal to modern scientific medicine to deal with emergency and graver cases. This circumstance in China makes an interesting contrast with the practitioners of Chinese medicine in Western countries, where they conduct only traditional Chinese medicine in their practice because they are limited by law from using modern medical methods or medications.

Many traditional Chinese medical physicians in China administer "double diagnosis" and "double therapy" in their practice. In making a double diagnosis, they make both a symptom-complex diagnosis according to the traditional Chinese diagnostic theories and methods (looking, smelling, asking, and feeling) and a disease diagnosis according to the modern scientific diagnostic theories and methods (physical, experimental, and machinery examinations) for every patient. In performing double therapy, they prescribe to the same patient both Chinese herbal medicines based on the traditional Chinese medical diagnosis and modern chemical drugs based on the scientific medical diagnosis.

For defending double diagnosis and double therapy, traditional Chinese medical physicians usually claim that both Chinese herbal medicines and modern Western drugs are useful to the patient. But they usually cannot offer any specific reason why both are necessary for a patient or a particular problem they are treating. While modern scientific medical physicians in China only administer modern scientific therapy, traditional Chinese medical physicians seem to take double therapy for granted as the proper course. In reality, the effect of double therapy is that, for any health problem of a patient, traditional Chinese medicine plays a minor, complementary role, while modern scientific medicine plays the major role. In this sense, traditional Chinese medicine is marginalized through the double therapy even in the traditional Chinese medical hospitals.

The real explanation for the practice of double diagnosis and double therapy has much to do with the monostandard of the integrated Chinese health care system. In addressing traditional Chinese medicine, the government has always emphasized the "scientificization" (*kexuehua*) of traditional Chinese medicine, such as offering "scientific" research, "scientific" explanation, and "scientific" reorganization of traditional Chinese medicine, giving patients integrated modern Western and traditional Chinese medical treatment, and so on. Such policies have, among other things, given people the impression that traditional Chinese medicine, although somehow useful, is by itself insufficient or inadequate to undertake a major health care task for any patient. Indeed, many individuals have come to believe that, for any health problem, traditional Chinese medicine can only play a complementary role to modern scientific medicine. Accordingly, even when visiting traditional Chinese medical physicians, they often ask for both modern Western and traditional Chinese drugs.

Worse yet, many young traditional Chinese medical physicians (especially those practicing in big hospitals) have accepted the complementary role of traditional Chinese medicine under the monostandard. In applying for promotion, they often face a review committee consisting of mainly modern scientific medical experts who are either unable or unwilling to evaluate them according to the traditional Chinese medical standard; rather, these physicians are often evaluated according to the extent to which they have grasped and practiced modern scientific medicine. Even in a traditional Chinese medical hospital, these physicians usually find themselves in an entirely "scientific" world in which all divisions, norms, and regulations have been made according to the modern scientific medical standard. More crucially, they are generally afraid that if they encounter a lawsuit for malpractice, all the norms, rules, and standards for identifying malpractice will come from modern scientific medicine.[6]

In short, although traditional Chinese medicine has a significant size and play in contemporary Chinese health care, it is not treated seriously as its own discipline. The primary cause of this is the monostandard of modern science directing traditional Chinese medicine. How did China come to obtain this monostandard? It would be useful to trace the history of the twentieth century and reflect on what happened in the past that brought traditional Chinese medicine to the point at which it is today.

The Twentieth Century: Science as the Standard

Prior to the introduction of modern scientific medicine (primarily the newly developed European anatomy and physiology) into China by the Jesuit missionaries in the sixteenth century, traditional Chinese medicine had been well-established and developed for more than 1,000 years, if we take the compilation of the traditional Chinese medical classic *Yellow Emperor's Internal Medicine* in the Eastern Han dynasty (25–220 C.E.) as the indication of its maturity.[7] The influence of Chinese medicine had long been extended to other East Asian countries, such as Korea, Japan, and Vietnam. Partly due to its lack of effective therapeutics in comparison with traditional Chinese medicine, the newly introduced modern scientific medicine had not gained a good reputation among the Chinese until after the Opium War (1840). As the West had asserted increasingly pressing economic, political, and military effects on China, and as modern scientific medicine had grown dramatically and established more and more of its hospitals in China, many Chinese intellectuals ultimately came to recognize the power of modern scientific medicine. Around the turn of the twentieth century, some began to take modern Western medicine as superior over traditional Chinese medicine. More crucially, they began to use modern Western science as a standard to reflect critically on the status of traditional Chinese medicine.[8]

The ghost of science has since haunted everything Chinese in general and Chinese medicine in particular for the entire twentieth century and into the twenty-first century. The branches of modern Western science have since been introduced to the Chinese not only as valuable tools for their lives, but also as standards for truth. Evaluating whether a traditional Chinese discipline is "scientific" by using modern Western science as the standard has become a substantial value judgment: "Scientific" is true, right, good, advanced, or at least indicating the right direction of future development, while "unscientific" is false, wrong, bad, backward, or indicating the fate of perishing. In modern China, whenever the argument is made that traditional Chinese medicine is not scientific, it is not simply describing how traditional Chinese medicine differs from modern scientific medicine, or from typical modern biology, physiology, pathology, and the like. Rather, it is mainly contending that traditional Chinese medicine is not worth retaining or developing. This is why, up to the very present, all those who want to defend the value of traditional Chinese medicine still have to argue that traditional Chinese medicine is a "science."[9]

It is true that even before the twentieth century, sometimes particular branches of Chinese medicine were disregarded or rejected for various reasons. For instance, in 1822, the Ching dynasty imperial court promulgated an order to abolish the department of acupuncture in the court's hospital because the court decided it was inappropriate to stimulate the emperor by needles even for medical purposes.[10] Although this policy hurt the development of acupuncture, an important branch of traditional Chinese medicine, acupuncture was still practiced and accepted in the folk context. However, using modern Western science as the standard to evaluate traditional Chinese medicine has been a unique modern case. Once Chinese intellectuals began to do so in the late nineteenth and early twentieth century, the fate of traditional Chinese medicine *as a whole* has become doomed to disappointment. As I see it, it is due to the application of this standard that traditional Chinese medicine could not really be practiced and develop well, no matter whether it was under the Nationalist government's harsh policy of subjugation in the first half of the twentieth century or it was under the Communist government's apparently supporting policy of integration in the second half of the twentieth century.

The Republic of China, established by the Nationalist party in 1911, took traditional Chinese medicine as "unscientific" or "less scientific" in most cases, at least in the first half of the twentieth century.[11] In its first series of ordinances concerning education promulgated in 1912, education concerning traditional Chinese medicine was intentionally "omitted." In 1914, the minister of education clearly asserted that traditional Chinese medicine as well as Chinese medical drugs should be abolished. A big demonstration made by the traditional Chinese medical circle forced the government to back off a bit; the minister announced that the government did not intend to abolish traditional Chinese medicine. In return, the traditional Chinese medical circle attempted to "scientificize" traditional Chinese medicine by re-editing its textbooks and setting up schools of traditional Chinese medicine according to modern scientific arrangements, such as distinguishing basic medicine and clinical medicine.

The unofficial truce was broken, however, in 1929 when the First Health Council of the Ministry of Health (which did not have any members from the traditional Chinese medical field) unanimously passed a proposal that identified traditional Chinese medicine as a kind of witchcraft that should be abolished in order to clear the way to national health. The proposal formulated concrete methods to end traditional Chinese medicine within 50 years, such as not issuing licenses to new traditional Chinese medical physicians and prohibiting traditional Chinese medical schools from operating. The proposal caused fierce resistance all

over the country and generated unprecedented debate regarding the "scientific" status of traditional Chinese medicine. In short, the result was a new compromise. The government no longer publicly discussed abolishing traditional Chinese medicine, but the traditional Chinese medical circle made more endeavors to get closer to "science" by rearranging its practical methods and content in terms of modern scientific medicine.

In contrast with the Nationalist policy of subjugating traditional Chinese medicine, the Communist Chinese policy has been to emphasize the integration of traditional Chinese medicine and modern scientific medicine in health care. Soon after the establishment of the People's Republic of China in 1949, Mao Zedong, the charismatic leader of the government, called for solidarity between traditional Chinese medical physicians and modern scientific medical physicians in order to promote the common cause of pursuing national health. In 1953, noticing that many intellectuals and local officials disregarded traditional Chinese medicine, Mao commented that both traditional Chinese medicine and modern scientific medicine included good and bad parts and that what had to be done was to inherit the good parts from each. He also predicted that there would be only one medicine in the future, the medicine directed by materialist dialectics — a Marxist philosophical doctrine that the Chinese Communists took to be the supreme principle in guiding all scientific subjects.[12]

In 1954, Mao emphasized that "it is more important for the modern Western medical physician to learn from the traditional Chinese medical physician than the other way around"[13] because traditional Chinese medicine had accumulated enormous effective experiences in the thousands of years of its practice. Following Mao's instruction, in 1955, the Ministry of Health arranged a special delegation of seventy-six Western medical physicians to learn traditional Chinese medicine from a group of experts in Beijing for 2 and a half years. Many local cities followed this example and organized similar reeducation programs for the modern Western medical physicians. Moreover, under the call of the central government, many major hospitals in the cities invited traditional Chinese medical physicians to join their staffs and form the departments of traditional Chinese medicine within the hospitals. At the same time, a group of special traditional Chinese medical hospitals were established in big cities such as Beijing, Shanghai, Guangzhou, and Nanjing.

In 1956, Mao instructed that modern Western medical physicians should learn traditional Chinese medicine so that they could use modern scientific knowledge and methods to research and reorganize traditional Chinese medicine; in this way, Mao expected that a new, united Chinese medicine and pharmacy could be created from the combined knowledge of traditional Chinese medicine and modern scientific medicine. The slogan of "integration of traditional Chinese medicine and modern scientific medicine" has since been emphasized in Chinese health care policy in order to pursue the ideal of creating "a new, united Chinese medicine and pharmacy."[14]

Theoretically, Mao wanted to use the materialist dialectics to check the validity and direct the combination of traditional Chinese medicine and modern scientific medicine. And in this way, he seemed to treat both equally. Materialist dialectics is a philosophy initiated by Friedrich Engels[15] and developed by the Soviet Communist leaders Lenin and Stalin. Very simply put, it holds two basic tenets, a materialist tenet and a dialectical tenet. The materialist tenet claims that everything is made of matter and that matter is the ultimate element and determining force of the world (against the idealism that the mind is the ultimate element and determining force of the world). The dialectical tenet claims that everything is moving and changing and interacting with other things (against the metaphysical position that something is not moving or changing).

From Mao's understanding, anything effective in traditional Chinese medicine must be accountable in terms of the materialist tenet — there must be a material basis to make it effective. He might also have held that traditional Chinese medicine, laden with Chinese philosophical dialectics, included richer dialectical thought than modern scientific medicine, although modern scientific medicine was highly materialistic with its clear positivist foundation supported by empirical scientific disciplines such as chemistry, anatomy, physiology, and pathology. Presumably, Mao's great ideal was to combine the materialist basis of modern scientific medicine and the dialectical dynamic of traditional Chinese medicine so as to create "a new, united Chinese medicine and pharmacy." Given that Marxist materialist dialectics takes materialism to be the first principle, the dialectics of a subject would be misplaced if it was without a materialist foundation in the first place.

Indeed, this materialist attitude constituted the basic tone of the Chinese treatment of traditional Chinese medicine in the second half of the twentieth century. The most necessary work was discovering the materialist elements and causes behind the appearances of the traditional Chinese medical effects so as to explain why Chinese medicine could work in health care. As a result, the standard for evaluating and guiding Chinese medicine became the standard of science, because there were no better materialist elements and causes for explaining the function of traditional Chinese medicine than the "real" chemical elements and anatomical structures (as disclosed in modern physics, chemistry, and anatomy). The traditionally established Chinese medical theories and explanations for the function of Chinese medicine had to be put aside because they were not "materialist" enough.

In this regard, China has invested tremendous resources in conducting two types of scientific research. One is to attempt to discover effective chemical ingredients in Chinese medicinal herbs in order to explain their clinical effects.

The other is to disclose anatomically observable "lines" behind the channel (*jing-luo*) system of Chinese medicine so as to offer a scientific explanation for the function of acupuncture. According to traditional Chinese medical theories, all Chinese medicinal herbs have specific properties (*xing*) and flavors (*wei*) that are important signs of their actions. In general, each medicinal herb is classified as having one of four properties (cold, hot, cool, or warm) and one of five flavors (pungent, sweet, sour, bitter, and salty). Knowing these properties and flavors helps to guide medical practice according to the Chinese medical theories of *yin-yang*, *zang-fu* organs, channels, and collaterals.[16] The new scientific research tried hard to explain these properties and flavors in terms of chemical elements as well as to discover the "real" effective chemical ingredients in the medicinal herbs. Chinese scientists often proudly mention a significant result from such research: the invention of a new antimalaria drug called "Artemisinin" (with a chemical structure quite different from the commonly used antimalaria drug Quinine), which came from drawing out the effective chemical elements from the Chinese medicinal herb Artemesia Annua (commonly called "wormword").[17]

The study of the channel system constitutes another heuristic case. The channel phenomenon is a special sensational phenomenon discovered by Chinese physicians over 2,000 years ago. When stimulating certain points on a patient's skin, the patient will have a sensation moving along specifiable routes, terminating at the location of the disease or the top of the head. With a definite distributive pattern on the human body, such specifiable routes are named "*jing-luo*" (channel) in Chinese medicine and constitute the theoretical and practical basis for the treatment of acupuncture.[18] Since the late 1950s, researchers on channel phenomenon have concentrated their efforts on attempting to discover a concrete tubing structure (like nerve fibers or blood vessels) below the specified routes. They wanted to find an observable anatomical structure or particular physical basis so as to ground the channel phenomenon on a materialist foundation. From their "scientific" understanding, the channel phenomenon could not have objective existence without particular anatomical "lines" as its physical basis. Although much labor and energy were invested in the hope of finding such a physical basis, all was done in vain.[19]

In short, although the government of the People's Republic of China has adopted a policy of integration, its emphasis has been on the standard of science in evaluating and developing traditional Chinese medicine. This monostandard integration is an imbalanced integration. It has not promoted Chinese medicine. In fact, traditional Chinese medicine has decreased in China. In 1959, there were 361,000 traditional Chinese medical physicians and 234,000 modern scientific medical physicians in China, while in 1977 traditional Chinese medical physicians decreased to 240,000 and modern scientific medical physicians increased to 738,000.[20] Since the 1980s, the government has no longer emphasized Mao's ideal of "creating a new, united Chinese medicine and pharmacy." Instead, it has only called for equal emphasis on both traditional Chinese medicine and modern scientific medicine. But modern Western science as a standard for traditional Chinese medicine has remained the same, even if not further strengthened. For instance, in 1993, President Jiang Zeming prompted the traditional Chinese medical circle "to strengthen the scientific research on Chinese medicine and its herbs." Continuing on this path will one day mean the end of traditional Chinese medicine.

A Standard of Its Own: Hope for the Future

Aside from the actual history of the twentieth century, the intellectual reason for the Chinese to engage the monostandard of modern scientific medicine for integration is the metaphysical assumption that the standard of science is more "true" than the standard of traditional Chinese medicine in accounting for medical reality. This assumption is affirmed by the "fact" that, for many people, modern scientific medicine has more extensive, more reliable, and more predictable effects than traditional Chinese medicine. However, the assumption is not well-grounded, and the "fact" is even more obscure — in reality, different groups of patients hold different "facts."

The philosophy of science has convincingly shown that, between two incommensurable, competing theoretical systems (such as the theoretical systems of traditional Chinese medicine and modern scientific medicine), it is only begging the question or making a circular argument to claim that one is more true than the other. Theory assessment involves plural values, such as coherence, simplicity, and predictability. A theory may stand better than another theory in terms of one value, but not in terms of another value. Even if we want to use confirmation (by empirical evidence) as the only criterion of truth, we still find that every theory conforms with some, but not all, empirical evidence. More importantly, empirical evidence is itself theory-laden. A piece of empirical information taken by one theory as its supporting evidence may not be accepted by another theory as evidence at all.[21] This is exactly the difficulty in assessing and comparing the epistemic status of traditional Chinese medicine and modern scientific medicine in order to judge which is better confirmed by empirical evidence (consider the channel phenomenon issue as an example).

This is to say, traditional Chinese medicine and modern scientific medicine, as two medical theoretical systems, are epistemologically competing for the status of truth. No one has sufficient epistemological resources to end the competition. In health care reality, traditional Chinese medicine and modern scientific medicine are complementary to each other in the sense that each works well on some problems — "well" at least according to the numerous observational treatments and personal judgments of patients. It is inappropriate to

integrate two competing systems using the standard of one of those systems. Instead, we should establish a dual standard medical integration where each system is practiced, tested, and evaluated according to its own standard.

This proposal of shifting to a dual standard recommends a significant change in China's policy on traditional Chinese medicine: traditional Chinese medicine should adopt and even emphasize its own standard in its education, research, and practice. In education, universities and colleges of traditional Chinese medicine should rethink their course arrangements and return their major attention to training their students in the Chinese medical classics and skills.

In research, traditional Chinese medical researchers should be allowed and even encouraged to design and conduct their experiments according to traditional Chinese medical theories and doctrines. For instance, scientific chemical analysis on traditional Chinese herbal medicine can be one type of experiment, but it should not be the only type or the most important type of traditional Chinese medical drug study. Given that a traditional Chinese medical prescription combines many different sorts of herbs in the direction of Chinese medical theories so as to give ample scope to their therapeutic functions, the prescription may involve too many chemical elements to make sense of a chemical analysis.

Similarly, in the channel study, traditional Chinese medicine does not have to determine a particular physical structure according to the modern scientific standard to validate the channel phenomenon. Given that the propagated sensation along channels as a phenomenon has been available for thousands of years and continues to be confirmed by patients in the present time, research on the channel phenomenon does not have to be designed for looking for "objective" anatomical constructions apart from the patient's real experiences. For traditional Chinese medicine, patients' concrete experiences and feelings are equally objective facts for research as particular physical structures.

In clinical practice, traditional Chinese medical physicians should stop taking double therapy for granted. Even if affording double diagnoses is helpful in seeking a more effective treatment for the patient, administering double therapy without a clear reason is problematic. Of course, this is not to say that every double therapy is misleading or harmful. Some double therapy may assert a better effect than the use of only modern scientific medicine or traditional Chinese drugs. Some traditional Chinese medical physicians use both types of drugs according to their different efficacious characters for different stages of treatment. All this makes sense.

What is necessary, however, is that when a traditional Chinese medical physician administers a double therapy, he must have a reason for it. It is misleading that he simply offers double therapy to every problem or every patient he is treating without a clear reason. The result is that when the therapy has a good effect, he has no idea whether it was due to the modern scientific drug, the traditional Chinese drug, or a combined effect of both drugs. When the therapy has a bad effect, he has no idea whether it was caused by the modern scientific drug, the traditional Chinese drug, or a mixed adverse effect of both drugs (even if each drug by itself would have been helpful). This is unprofessional in terms of either the modern scientific or traditional Chinese medical standard. Traditional Chinese medical physicians are trained in using traditional Chinese drugs for treatment; they should rely on their own specialty to administer treatment, unless they have a good reason to extend themselves to modern scientific medicine in special cases.

My dual standard proposal carries specific legal implications. Since traditional Chinese medicine, like modern scientific medicine, cannot guarantee the success of a treatment nor promise no risks in its practice, the principle of informed consent must be maintained between physician and patient. Furthermore, under the dual standard system, the branches of the government must stand ready to regulate traditional Chinese medicine in terms of its own standard. The standard should apply to all manners in which traditional Chinese medical practice is assessed, its physicians reviewed, and malpractice judged. Only in this way can a balanced integrative health care system be established.

Finally, a word about the unity and disunity of traditional Chinese medicine and modern scientific medicine as two types of medicine is in order. Although traditional Chinese medicine and modern scientific medicine appeal to different diagnostic, therapeutic, and preventive mechanisms and products validated in their respective practice (so that they engage different health care standards), I believe that both types of medicine rely on empirical methods. If this is the case, then what is the point in emphasizing traditional Chinese medicine's own standard for practicing and developing itself? My answer is twofold.

First, at an abstract level, there is methodological unity between traditional Chinese medicine and modern scientific medicine since they are both empirical inquiries into the human body, illness, and disability and thereby use empirical methods to treat their patients. However highly laden with their theories, their clinical claims can in principle be charted, tracked, predicted, and tested through empirical methods. Having said that, we must also recognize that traditional Chinese medicine and modern scientific medicine are committed to crucially different empirical methods in their respective practice and development. At a more concrete level, the methodological disunity between traditional Chinese medicine and modern scientific medicine makes a dual standard medical integration significantly important.

A prominent case for this methodological disunity is modern scientific medicine's use of randomized clinical trials versus traditional Chinese medicine's use of individual-sensitive observational studies. No one can deny the crucial importance of randomized clinical trials as a standard method for modern scientific medicine. However,

traditional Chinese medicine cannot accept such trials as its standard method. In order to conduct a randomized clinical trial, we would need to assemble a group of patients with the same disease diagnosis for testing the efficacy of a drug (namely, the same disease and the same drug are essential conditions for undertaking the trial). However, traditional Chinese medicine is about the individual; it is highly unlikely to result in the same symptom-complex diagnosis for a group of patients and to prescribe the same herbal medicines to treat them.

In traditional Chinese medicine, symptom-complexes do not describe diseases. They describe the functioning of the whole body at a definite time or stage of a disease. They are differentiated according to the "eight guiding principles" (*yin* and *yang*, interior and exterior, cold and heat, deficiency and excess), the state of *qi* and blood, the theory of the channel, the theory of the organs (*zang-fu*), the etiology of disease, and so on. Accordingly, it is nearly impossible to obtain exactly the same symptom-complex for any two patients, let alone a group of patients. As symptom-complexes differ in different patients, the prescriptions of herbal medicines for treating them must differ too. Thus, it is impossible for traditional Chinese medicine to conduct a stringent randomized clinical trial. If traditional Chinese medicine were "forced" to offer the same symptom-complex diagnosis and administer the same prescription for a group of patients in order to conduct a randomized clinical trial, it would already be a Procrustean Chinese medicine. The standard method of traditional Chinese medicine is not randomized clinical trials, but individual-sensitive observational studies. Traditional Chinese medical physicians and researchers should be allowed to use individual-sensitive observational studies to test and develop Chinese medicine without being marked as "inadequate" under the monostandard of modern scientific medicine.[22]

Conclusion

Contemporary Chinese scholars still debate about whether traditional Chinese medicine is a science. As I see it, the answer depends on what definition of science we use. If we use a broad definition so as to mark every empirical inquiry as science, then traditional Chinese medicine certainly meets the definition. However, if we take modern scientific medicine as the unique model of scientific medicine, traditional Chinese medicine is not science. The debate then is really about what standard of science we are using, or should be using. If traditional Chinese medicine can really offer certain beneficial things to health care that modern scientific medicine cannot offer or cannot offer as well (as I think this is the case), then we should not undermine the benefit of these things by using a monostandard of science that would defeat or devalue the special mechanisms or elements of traditional Chinese medicine that must have produced these results.

The complex and even mystic nature of the human body provides abundant chances and opportunities for different types of medicine to prosper. No single type of medicine, modern or traditional, can prove itself with absolute and complete truth without begging the question. Accordingly, the Chinese should change their monostandard integration to a dual standard integration, where modern scientific medicine will be practiced and developed according to the modern scientific standard, and traditional Chinese medicine will be allowed to practice and develop in terms of its own standard.

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References

1. The World Health Organization has defined three types of health systems to describe the degree to which traditional medicine/complementary and alternative medicine is an officially recognized element of health care. "In an integrative system, TM/CAM [traditional medicine/complementary and alternative medicine] is officially recognized and incorporated into all areas of health care provision.... An inclusive system recognizes TM/CAM, but has not yet fully integrated it into all aspects of health care, be this health care delivery, education and training, or regulation.... With a tolerant system, the national health care system is based entirely on allopathic medicine, but some TM/CAM practices are tolerated by law." See World Health Organization, *WHO Traditional Medicine Strategy 2002–2005* (Geneva: WHO, 2002): at 8–9, *available at* <http://www.who.int/medicines/library/trm/trm_strat_eng.pdf>.

2. Ian Holliday categorizes four different forms of relation between modern scientific medicine and traditional Chinese medicine based on his research on the East Asian countries: integration (nondiscrimination and fusion, such as mainland China), equalization (nondiscrimination and separation, such as South Korea and Taiwan), subjugation (discrimination and fusion, such as Japan), and marginalization (discrimination and separation, such as Hong Kong and Singapore). See I. Holliday, "Traditional Medicines in Modern Societies: Learning from East Asia," *Jour-*

nal of Medicine & Philosophy, 28, no. 3 (2003) (forthcoming). The dual standard integration which I support may be similar to Holliday's "zone of balanced health care development."

3. Unless otherwise stated, all the figures and other information in this section are from the public homepage of the State Administration of Traditional Chinese Medicine, *at* <http://www.satcm.gov.cn/lanmu/zonghe_xinxi/tongji_zhaibian.htm> (last visited June 14, 2003). Unfortunately, most of the information offered there is in Chinese. The information I used in this article was translated into English by myself.

4. See the homepage of the Ministry of Health of the People's Republic of China, *at* <http://www.moh.gov.cn/statistics/digest01/ty1-1.htm> (last visited June 14, 2003).

5. My position in the rest of this section was formed primarily from my investigation of the traditional Chinese medical practice in Beijing and my hometown (in Inner Mongolia) in July 2002. Regarding recent discussions and debates about the manner of traditional Chinese medical practice and the direction of its development, readers can easily find a huge number of essays in the recent issues of relevant Chinese newspapers and journals, especially *Zhongguo Yiyao Xuebao* (*Chinese Medicine and Pharmacy*), *Jiankang Bao* (*Health*), *Yixue yu Zhexue* (*Medicine and Philosophy*), and *Shanghai Yiyao Xuebao* (*Shanghai Journal of Chinese Medicine and Pharmacy*).

6. Officially, Chinese administrations on traditional Chinese medicine clearly support double diagnosis (*shuangchong zhenduan*), but have no stated position on double therapy. There are no statistics available regarding what percentage of traditional Chinese medical physicians conduct double therapy without a justifiable reason. My investigation finds that the practice is quite common.

Undeniably, in addition to the influence of the monostandard, there is another important cause for double therapy: economic incentive. The government's long time rigid control of health care prices has caused a ridiculous phenomenon in medical practice in recent China: physicians' overprescription. This phenomenon has made double treatment all the more appealing in the traditional Chinese medical circle. Health care has been taken as welfare service and its price is set low by the government. Physicians cannot charge any payment for their consultation with patients except for a nominal amount of registration fees. This forces physicians to "do" something on the patients in order to get payments (for their hospitals and themselves), such as performing experimental and machinery examinations, procedures, operations, and — very importantly — prescribing drugs to make a profit from the difference between the wholesale and retail prices of the drugs. Many Chinese hospitals obtain almost 50 percent of their income by "selling" drugs to patients. This circumstance puts traditional Chinese medical hospitals in an even worse situation than modern scientific medical hospitals — the traditional hospitals have to sell more drugs to have their ends meet because they usually do not have as advanced modern technological equipment to bill patients for using as modern scientific medical hospitals do. Moreover, since traditional Chinese medical drugs are usually set at a lower price than modern scientific medical drugs, traditional Chinese medical physicians' prescribing modern scientific medical drugs is financially inevitable.

7. Many people still believe that the *Yellow Emperor's Internal Medicine* was compiled much earlier than the Eastern Han dynasty. Here I simply follow Yuqun Lao's well-grounded argument of fixing the time of its compilation in the Eastern Han dynasty. See his *Qihuang Yidao* (*The Way of Chinese Medicine*) (Taipei: Hongye Wenhua Shiye Youxiangongsi, 1993): at 55–80.

8. See, e.g., Z. Wei and L. Nie, *Zhongyi Zhongyao Shi* (*A History of Traditional Chinese Medicine*) (Taipei: Wenjin Press, 1994): at 332–36.

9. The current debate still takes place around the issue of whether traditional Chinese medicine is science. Those supporting the existence and development of traditional Chinese medicine take pains to argue that it is science. Due to the value-laden character of the concept of science, no one dares to risk one's position by arguing that traditional Chinese medicine is not science, though it is effective.

10. See J. Liang, *Zhongguo Gudai Yizheng Shilue* (*A Short History of the Chinese Medical System*) (China: Inter Mongolia People's Press, 1995): at 172.

11. The information in this paragraph and the next is primarily from H. Zhao, *Jindai Zhongxiyi Zhenglunshi* (*History of the Debate Between Traditional Chinese Medicine and Modern Scientific Medicine in the Modern Time*) (Hefei: Anhui Science & Technology Press, 1989): at 86–91, 111–17, 122–31.

12. The information in this paragraph is primarily from B. Ma, X. Gao, and Z. Hong, *Zhongwai Yixue Wenhua Jiaoliushi* (*The History of Medical Cultural Communication Between China and Foreign Countries*) (Shanghai: Wenhui Press, 1993): at 576–82.

13. *Id.* at 577.

14. *Id.* at 582.

15. See, e.g., Friedrich Engels, *Dialetik der Natur* (Chinese), trans. Zhong gong zhong yang Makesi Engesi Liening Sidalin zhu zuo bian yi ju (Chinese Communist Party Central Committee's Bureau of the Compilation and Translation of the Works of Marx, Engels, Lenin, and Stalin) (Beijing: People's Press, 1971).

16. For a very useful English introduction to traditional Chinese medicinal herbs, see L. Yanchi, *The Essential Book of Traditional Chinese Medicine*, vol. 2 (New York: Columbia University Press, 1998).

17. For a useful summary of such research projects and their outputs, see State Administration of Traditional Chinese Medicine, ed., *Jianguo 40nian Zhongyiyao Keji Chengjiu* (*The Scientific and Technological Achievements of Traditional Chinese Medicine in the First Forty Years of the People's Republic of China*) (Beijing: Chinese Medical Classics Press, 1989): at 586–654.

18. For a very helpful English introduction to the channel system according to traditional Chinese medicine theory, see Yanchi, *supra* note 16, at vol. 1, Chapter 4.

19. For an excellent book on such research projects and problems, see L. Chengzhong, *Linchuang Jingluo Xianxiangxue* (*Clinical Channel Phenomenology*), (Dalian: Dalian Press, 1994).

20. For all the figures and other information in this paragraph, see the homepage of the State Administration of Traditional Chinese Medicine, under the entry of *Zhongyiyao Wushinian Dashiji 1949–1999* (*Significant Events of Traditional Chinese Medicine in 1949–1999*), *at* <http://www.satcm.gov.cn/lanmu/zonghe_xinxi/tongji_zhaibian.htm> (last visited June 14, 2003).

21. For these important views, see some well-known works of Thomas Kuhn and Paul Feyerabend. See, e.g., T. Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1970); P. Feyerabend, *Against Method* (London: Verso, 1978).

22. For a brilliant exploration of the role of randomized clinical trials in relation to complementary and alternative medicine, see K.F. Schaffner, "Assessments of Efficacy in Biomedicine: The Turn Toward Methodological Pluralism," in D. Callahan, ed., *The Role of Complementary and Alternative Medicine* (Washington, D.C.: Georgetown University Press, 2002): at 1–14.

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