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### Gender, Science, and Indigenous Medicine: Planning Research on Asian Women Professional Providers

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## **Gender, Science, and Indigenous Medicine: Planning Research on Asian Women Professional Providers**

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*Women's health care prospects around the world depend on many factors, including broad social changes involving how gender dimensions within traditional medicine are transformed by global biomedicine. I propose a model that will help us to evaluate international health care transformation in Asia through understanding the specific impact of biomedicine on women practitioners of indigenous medicine. I suggest in the model that the relationship among gender, indigenous medico-science, and biomedicine is shaped by culture-specific and historical gender organization, the gendered knowledge foundations of indigenous medicine, and modernizing biomedical and Western science influences.*

There are many ways in which the social organization of gender produces barriers to good health and to good health care for women. Health care improves, however, when women have access to competent and trusted female health care providers. Reasons for improvement have much to do with shared cultural values that support a willingness on the patient's part to discuss health care problems with someone of the same sex, and the provider's ability to understand women's health care needs within their social and cultural context. I address in this article the potential consequences of social change that might impact the medical relationship between women, as gendered dimensions of traditional medicine in non-Western countries are increasingly transformed by globalized biomedicine and science. To help guide research, I propose a model that will help us to evaluate international health care transformation in Asia through understanding the specific impact

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of biomedicine on women practitioners of indigenous medicine. The model is developed from scholarship in the feminist critique of science and feminist medical anthropology, and from ethnographic research on women Ayurvedic doctors in Nepal. I suggest in the model that the relationship among gender, indigenous medico-science, and biomedicine is shaped by culture-specific and historical gender organization, the gendered knowledge foundations of indigenous medicine, and modernizing biomedical and Western science influences.

An important tool in international health care planning is understanding how biomedicine's increasing dominance, well underway for decades in many countries yet still only partially understood, may impact gender dimensions of indigenous plural medical systems important to women and their families. In this article I propose a framework by which to evaluate the impact of biomedicine on one category of women providers of indigenous medicine, namely, formally trained and professional women practitioners of indigenous medico-science, noting that such providers are importantly involved in women's health care globally and in Asia in particular (Chaudhury, 2001). I also report preliminary findings from ongoing ethnographic research on women Ayurvedic doctors in Nepal, in order to clarify and elaborate on certain points, though my main objective is to encourage further research on gender and socio-medical transformation. The general lack of information about non-Western women professional healers limits our understanding of the impact of indigenous medicine's evolution on women's health status, especially in an era of global biomedicine when such professionals are more likely than their informal counterparts to be impacted by biomedicine, and are more likely than their professional male counterparts to be preferred by female patients. Gender issues in professional indigenous medicine can be usefully explored in Asian countries like Nepal and India that are home to some of the world's oldest medical traditions, where young women's interest in studying indigenous medicines like Ayurveda is high in some regions (such as Mysore, India; Nisula, 2006) and increasing in other regions (such as Kathmandu, Nepal),<sup>1</sup> and where some of the world's highest rates

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<sup>1</sup> Women have been part of indigenous Ayurvedic medicine's evolution and practice for at least the past century in South Asia, and the number of women formally trained in both Ayurvedic and biomedicine has steadily increased with the acceptance of women's higher education. Today in Nepal, approximately 10% of the Ayurvedic doctors holding the BAMS degree (Bachelor of Ayurvedic Medicine and Surgery) and higher postgraduate Ayurvedic medical degrees and specializations are women (figures are unavailable for the gender composition of auxiliary and technical Ayurvedic practitioners, as well as for the very large number of non-formally-trained practitioners, but are likely higher). A recent significant trend in women's medical education is the enormous increase in women's enrollment at Naradevi Ayurvedic Teaching Hospital in Kathmandu. The number of doctors-in-training is approximately 30%, with the most recent classes at 50% female enrollment, the majority of whom chose Ayurveda over biomedicine as their first choice in higher education, itself a trend reversal. Thus, in spite

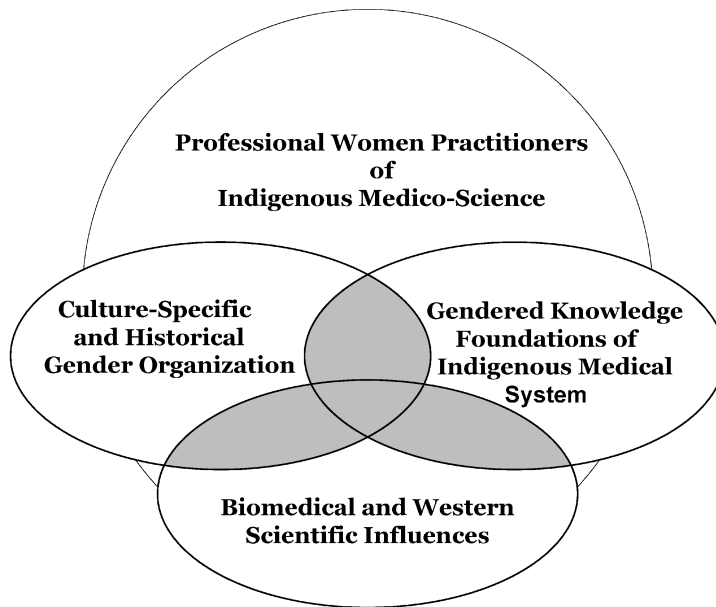
of infant mortality, maternal mortality, and child morbidity and mortality, lead to diminished quality of life and shortened life expectancy.

The variety of indigenous medical systems around the world suggests that gender issues, well understood for Western science, may differ in significant ways for non-Western science practices. Western scholars have greatly advanced our understanding of the role gender plays in modern scientific ideology and its application in women's health in the so-called developed world. To the extent that we also know about indigenous medicine's gendered features, we have the tools by which to see how powerful, coexistent ideologies and practices evolve with the social and technological change introduced by global biomedicine. One important application of understanding gender issues in non-Western medical systems as they modernize would be to prevent the introduction of ideologies and practices associated with biomedicine that are deleterious to women and to health care systems that have traditionally supported women. As indigenous systems modernize and increasingly confront and coexist with Western biomedicine, the effect on women and women's health care must be understood so as to best direct the process in positive directions.

In this article I consider certain theoretical and methodological approaches to issues that are important to women's international health care researchers, development activists, and policymakers interested in better understanding the role of gender in modernizing non-Western medico-science traditions. By developing a model for research and policy planning, I focus primarily on women professional indigenous practitioners with the goal to further our understanding of a little-known group as they are impacted by biomedicine, and respond to it. Here I propose a model in which the relationship between gender and indigenous medico-science in non-Western countries is understood to be dynamically shaped by three broad factors: (1) culture-specific and historical gender organization; (2) gendered knowledge foundations and practice features of indigenous medicine; and (3) modernizing biomedical and Western science influences. Each of these in turn impacts the others. (See Figure 1.) The first, culture-specific gender relations, refers to the cultural and social organization of gender in a community, region, or country—the “cultural lens” through and by which people make sense of and experience sex differences in their everyday lives. The second factor, the gendered knowledge foundations of indigenous medico-science traditions, refers to how ideas about health, illness, and healing are gendered through symbolization, medical practice, knowledge acquisition, and the social organization of medicine and healing. The third dimension of the model refers to socio-medical change as induced through modern biomedicine in its

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of advancing biomedical presence in Nepal, women are choosing professions in Ayurvedic medicine.



The shaded area is the site of gender-based social and medical transformation.

**FIGURE 1** Women indigenous medico-science practitioners, gender organization, biomedicine, and social change.

various global forms. Here, biomedicine is seen as a force of social transformation in its “modernizing” impact on plural medical systems. Biomedicine’s ideological power is further strengthened by governmental support for its dissemination, a factor critical to understanding not only biomedicine’s rapid global advance but its potentially enormous transformative effect on plural medicine.<sup>2</sup>

<sup>2</sup> For example, the pressure to modernize Nepal in the middle of the last century was met through the introduction of European health care development in the form of immunization programs, public health programs, the establishment of a world-class biomedical college and auxiliary schools, and a rapidly expanding pharmaceutical industry (Justice, 1986). Today, the health and medical systems in Nepal can be grouped into four categories: the home-based system; the faith healing system; so-called traditional medicine that includes Ayurvedic medicine, homeopathy, Tibetan medicine, and Unani; and modern allopathic medicine, with its vast network of hospitals, clinics, medical and nursing schools, pharmacies, and practitioners. In 2006 there were 4,154 allopathic hospitals, health centers, health posts, subhealth posts, and primary health centers, and 291 similar Ayurvedic facilities. These include two regional Ayurvedic hospitals, Naradevi Teaching Hospital and College in Kathmandu, with 100 beds, and Dang Ayurvedic Hospital, also with approximately 50 beds; 14 zonal hospitals; 61 district Ayurveda hospitals and health centers; and 214 Ayurvedic drug dispensaries cum clinics. There are over 40 private Nepal drug companies, 28 foreign Ayurveda drug companies registered in Nepal, and a semiautonomous drug research and manufacturing institute called Singh Durbar Vaidyakhana, which is over 350 years old (Nepal Development Forum, 2002;

The three dimensions of the model, which will be elaborated on further below, including research methodology, must be contextualized according to a community's historical and cultural features; each of these broad factors, and to a limited degree the relationships among them, has been studied by researchers in several subfields of anthropology, and in feminist science studies, gender and women's studies, and development studies. Here I synthesize insights from these various fields that can guide inquiry into the dimensions of change in women's health care lives. I developed the model based on ethnographic research into the impact of biomedical modernization on Ayurvedic medicine in Nepal that I have conducted since 1998 and that was approved by the institutional review boards at Auburn University, Auburn, Alabama, and Florida Atlantic University, Boca Raton, Florida.

### LOCATING INDIGENOUS WOMEN PRACTITIONERS

Gender produces significant differences in individuals' physical, political, social, and ideological aspects of medical experiences. From a critical examination of gender and science, we have produced new knowledge of many Western science fields and one of the best examples of applying feminist theory to the paradigm of science as a social process.<sup>3</sup> We know less, however, about Western science's mark on women professional health care

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Department of Ayurveda, 2006). There are approximately 239 formally trained Ayurvedic doctors, 754 Ayurvedic health associates, and 308 Ayurvedic health workers (Department of Ayurveda, 2006). In spite of the many obstacles Ayurvedic medical institutions are experiencing due to the state's increasing support for biomedicine, the popularity of Ayurvedic medicine is evident in the fact that Naradevi Ayurvedic Hospital treated over 100,000 new and returning patients in 2005/06 (Department of Ayurveda, 2006).

<sup>3</sup> The gendered contours of Western science and biomedicine that have emerged as potentially relevant to such inquiries of health care transformation have been identified by scholars of Western feminist science and technology studies. They include the significant ways in which social and cultural values are embedded in the history of scientific knowledge and practice, with particular attention paid to the production, reproduction, and reinforcement of gender and racial hierarchies. Science's claim to unbiased objectivity is challenged by many things, including its sexist representations, its exclusion of minority perspectives, its elitist research agenda, and the uneven distribution, locally and globally, of medical resources. Philosophical and other humanistic and social interpretations of science have demonstrated the connections between Western gender ideology and gender symbolism, on the one hand, and Western scientific and medical discourse on the other, such that we now have a greater understanding of how our culture has come to think of science and nature in particularly social and gendered terms (Berman, 1989; Cohn, 1987; Haraway, 1978, 1989; Jacobus, Keller, & Shuttleworth, 1990; Jordanova, 1993; Keller, 1985, 1991; Martin, 1987; Merchant, 1980; Russett, 1989). Still other studies have gone to the roots of scientific theory and method to show that gendered features of epistemological structure lead to limited methods and biased forms of knowledge (Keller, 1983, 1992; Longino, 1990, 1993, 2002). Within the applied fields of medicine and technology, the medicalization and regulation of pregnancy and aging have transformed our ideas of childbearing and kinship (Becker, 2000; Lock, 1993; Rapp, 2000;

providers of indigenous traditions in general and within Asian medical systems in particular, with the exception of a large and important literature on traditional and skilled birth attendants.<sup>4</sup> Early medical anthropological models linked women with informal and domestic healing, and men with formal and public healing of the kind of interest here (Kleinman, 1980; Leslie, 1976), while other binary models left little room for gender considerations (Foster, 1978; Young, 1982). Indeed, women have been participants in research within nonformalized practices yet are absent as participants in research within those practices widely regarded as non-Western sciences such as Ayurveda, Unani, Siddha, and Tibetan medicine. To date, our knowledge of the relationship among gender, practitioners, and health care focuses almost exclusively on informal female healers such as mothers, midwives, and faith healers (Huber & Sandstrom, 2001; Jeffrey, Jeffrey, & Lyon, 1989; Jordan, 1983; Kaufert & O'Neill, 1993; Laderman, 1983, 1991; McClain, 1995), and to male professionals and informal healers (Burghart, 1984; Desjarlais, 1992; Durkin, 1988; Kakar, 1982; Leslie & Young, 1992; Macdonald, 1975; Maskarinec, 1995; Nichter, 1980, 1981, 2001; Nordstrom, 1989; Obeyesekere, 1992; Parker, 1988; Stone, 1976, 1986; Trawick, 1992; Zimmermann, 1978, 1987, 1992; Zysk, 1991). Within feminist medical anthropology literature, gender issues in the cross-cultural study of illness and healing have been addressed, mainly focusing on women as patients, midwives, and informal healers. Also discussed are medical and nonmedical factors that lead to women's empowerment as healers, such as a wide distribution of medical knowledge, links between religion and medicine, and family, educational, and individual resources (Finerman, 1989; Kleinman, 1980; McClain, 1995; Struthers & Eschiti, 2005). While such healing roles contribute to women's local power, cultural beliefs may nonetheless intervene to contradict women's empowerment, as in the case of low-status north Indian midwives' contact with impure birth substances (Jeffrey et al., 1989). Finally, researchers find that women as patients are not passive recipients of biomedicine and biomedical technology in Western and non-Western cultures, but are strategically pragmatic (Adams et al., 2005) and sometimes reject biomedicine's influence in contemporary life (Lock & Kaufert, 1998).<sup>5</sup>

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Strathern, 1992). Finally, historians note that the social production and expression of mental illness follow cultural patterns of gender stratification, too (Saltonstall, 1993; Theriot, 1993).

<sup>4</sup> A recent issue of the *Journal of Midwifery and Women's Health* is dedicated to the global exploration of maternal, perinatal, and child health (Volume 52, Issue 4, July–August 2007).

<sup>5</sup> Although the focus in this article is on non-Western female medical professionals, the relationship between Western allopathic medicine and non-Western female doctors and patients has been studied within the colonial and postcolonial context, and bears mentioning here for it indicates early trends in the relationship among the ideology of science, biomedicine, and women. The promotion of medical education for women historically has been closely tied to broader efforts in support of women's higher education, and undertaken within colonial

Professional providers are understood here to be those practitioners of indigenous or traditional medicine (i.e., nonallopathic medicine) who perform a recognized medical role in society involving the skilled application of an organized body of knowledge about illness and cure. In the context of Nepal, for example, this group includes formally and non-formally-trained Ayurvedic doctors, commonly called *baidya* by lay people, a term that does not necessarily distinguish the educational level conferred by way of ranked titles upon graduation from academic programs. Professional also refers to those who have gained knowledge through a standardized educational process that may occur in an institution, through a household of lineage experts, or both. For the purposes of identifying a group that shares characteristics across national and cultural borders, the women practitioners of this model are those that have received training and certification from within formalized institutional settings, settings that themselves may be shaped by modern postcolonial educational organization.<sup>6</sup> Professional expertise is in theory open to all individuals who fulfill certain preliminary requirements for admission, and who complete an educational curriculum that is set and transmitted by experts in the field. This definition identifies the formally educated as a group that tends to be more controlled by the state than non-formally-trained practitioners, and hence a group that is more susceptible to health care policies that evaluate and administer often quite different medical systems.<sup>7</sup> Formally trained professionals confront biomedicine and science in a number of venues, and it is the state's ability to control them and their

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and postcolonial contexts of regional inequalities in which women are seen to play a significant role in lifting empire and former colonies alike into respectable positions of national and international status. Historical studies of temporary immigrant women in both worlds—European/Western and non-Western—provide rich accounts of women's healing abilities, their strategies of cultural adjustment, and their nationalist goals within the early stages of allopathic medicine's global presence. Expectations of elite Chinese women studying biomedicine in U.S. medical schools during the early decades of the twentieth century combined values of ethical and pious service with rigorous medical training, and exportable Western modernity with traditional norms for female domesticity and subservience (Ye, 1994). The Chinese women were hailed for bringing modernity and a respect for women's education to an ailing nation. Victorian British women doctors made the long journey to India to administer medicine to Indian women they thought were prevented from receiving medical care from male doctors, both British and Indian professionals, due to cultural norms of seclusion (Burton, 1996). The British "lady doctors" met the call from British and Indian alike to provide medical attention and resources to elite Indian women, the assumption being that indigenous medicine was deemed ineffective and irrelevant.

<sup>6</sup> I discuss the larger group of Nepali women Ayurvedic practitioners, including formal and non-formally-trained doctors, in another context (Cameron, 2009a, 2009c).

<sup>7</sup> In the case of Nepal, for example, the Ministry of Health oversees all forms of medicine practiced there, including to a limited degree shamanism, though the Ministry does not regulate the educational branches, for example, the biomedical colleges and the Ayurvedic teaching hospital; those are regulated by the Ministry of Education. In addition to control by the Ministries of Health and Education, Ayurvedic medicine also comes under the purview

position vis-à-vis health care development that makes this group of providers of relevance here (Banerjee, 2002, 2004).

In the model I extend the theoretical insights of feminist science studies to include women who are practitioners of non-Western science, thus enabling us to evaluate the influence of Western biomedicine on gender in non-Western medical systems, particularly as health and medically related educational programs increasingly adopt integrated curricula. The purpose here is less to interrogate the value and power of Western science and more to provide a framework that systematically evaluates the real impact biomedical science is having on the world's plural medical systems and women's health care in them. From a feminist perspective, women professional healers, particularly in Asia, are of interest for the unique roles they play in cultures known for gender inequality but who may nonetheless be members of medical cultures that are less hierarchical, less sexist, and less objectifying than modern biomedical culture. From a practical perspective, models of women's health care internationally that can account for indigenous medicine's female practitioners will inevitably have a more nuanced understanding of women's contemporary experiences and future prospects of health care, for women are heavily invested in and dependent on ethnomedicine. Finally, policy development involving traditional medicine is gaining renewed interest with the global rise of its popularity, and we should anticipate greater dynamism in government's consideration of indigenous medicine (Banerjee, 2004).

Using this approach, I distinctly advocate for women's greater inclusion in health care practice at all levels, but I do not advocate for one set of healing practices over another. I implicitly, though, do argue for plural medical systems as these have been found to provide all people—practitioners and patients alike—greater agency in health care choices. I question if the modernization of indigenous medical systems exhibits any distinctive gendered patterns and ideologies that might help us understand the relationship among social change, gender, and health care. For example, one set of competing ideas that might be tested is whether biomedicine's influence introduces gendered ideas into indigenous medicine, or if certain characteristics of science and their application in medicine ultimately transcend cultural distinctions—as modern science would have us believe. Alternatively, we can ask if culture-specific conceptual lineages embedded in indigenous medicine differ so significantly that what have been identified as important gender issues for Western medicine simply do not hold true for indigenous medicine. Below I discuss other kinds of questions that researchers might fruitfully ask.

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of the Ministry of Forestry and Soils and its regulation of the medicinal plants upon which Ayurveda relies.

## APPLYING THE MODEL

In this section I highlight the sites of contact and influence between modernizing health care forces and indigenous medicine that bear directly on women professional health care providers. While I envision primarily qualitative research methods to generate data, including ethnography, focused interviews, and participant observation, quantitative and survey data also can elucidate aspects of the phenomena in larger populations. My focus is on Asian cultures, but the model could be adapted to non-Asian settings as well, where indigenous medicine is found to be an important resource to women as practitioners and as patients.

### Culture-Specific and Historical Gender Organization

Gender relations in a given culture are the base from which to investigate gender relations in health care, for they provide people with their everyday working models of how gender is socially constructed. Gender-based ideologies of social and family organization that provide the foundations to such practices as patrilineal inheritance, son preference, and patrilocal residence, can profoundly shape women's involvement in the process of medical modernization by creating impediments to women's educational and professional development, as well as their access to medical resources as a patient or caretaker. Marital norms and expectations, such as arranged marriage, age at marriage, and widow remarriage also can affect women's educational and professional choices, as well as women's health status around reproductive issues. It is noteworthy that the most prominent women providers in Nepali Ayurveda do not live in the ideal family arrangement of an extended or joint family, finding the ideal to be an impediment to their professional goals.

Religious values strongly influence a culture's ideas about gender and social exclusion. In Nepal, for example, Hindu beliefs about the impurity of bodily substances that inform both gender and caste hierarchy are partially mitigated by Hindu and Buddhist beliefs in compassion and service to others, that inform people's interests in careers from social work to development to health care. Religious values also influence a woman's self-perceptions of the doctor's role; for example, they can inform her attitude toward treating nonelite groups. In the case of Nepal this would include nonliterate rural farmers, Dalits (low-caste people), nonelite women, and ethnic minorities (see for example Cameron, 2009b).

Cultural norms for female education directly can impact health care provision; it has long been recognized that family health improves as women's education levels rise. Indeed, the positive link between development-based female literacy programs and family health always has provided one of the strongest rationales for continuation and success of such programs, despite broad critiques of third-world development. As women's education

improves, an important question that arises is whether and why women choose careers in health care, particularly in traditional medicine. Does a society value female healers and formally trained practitioners of indigenous medicine? Here we can examine how women develop as professional practitioners, as a site of engagement among gender, culture, health, and modernity. Women regularly may be put in the position of confronting contradictions between professional aspirations and cultural norms for women. Beginning with doctors-in-training, we can look at how aspects of career choice, women's educational experiences, and their support systems are thought to be shaped by society's perceived expectations of women. This line of inquiry into constraints, agency, and empowerment would include leadership roles, advocacy positions, and women's professional relationships with men.

### Gendered Knowledge Foundations of Indigenous Medical Systems

Here we turn to the gendered logic of traditional medical thought. I propose that researching the cultural and knowledge foundations of women doctors as practicing scientists requires a two-tiered approach that investigates gender within the official practices of indigenous medicine and within cultural paradigms of the body and healing. By "official practice," I mean two things: (1) the professional and legitimate use of medical theory in the diagnosis and treatment of illness; and (2) the forms of its ideological construction, such as discursive themes and bounded categories in documents and debates, against which certain actions—such as the establishment of an educational program or the inclusion of ethnomedicine in national women's health care policy—are taken.

By "cultural paradigm," I mean the symbols that inform people's understandings of the "ecology" and "economy" of the body and person in everyday life. While in the West these paradigmatic images tend to derive from biomedical sources, the case is different in non-Western cultures, where body paradigms have evolved from different ideas about humans' relationship with nature, physical, nonphysical, and metaphysical sources of illness and healing, and life-cycle determinants of health, to name a few. Our interest here is in elucidating the gender dimensions of non-Western paradigms of illness and health, and how increasingly dominant biomedical science is altering these indigenous paradigms. To the degree that new and different health-related messages are disseminated to lay people through the mass media and education, changes in medical practices become part of new cultural paradigms, articulated and rearticulated in people's everyday social and family interactions. By interviewing doctors and doctors-in-training, by observing patient–doctor clinical interaction, and by examining popular cultural media, one can obtain data on a society's gendered knowledge

foundations and practice features of indigenous medicine, as well as generating data on the synergy and opposition between Western biomedical ideas and indigenous understandings of medical phenomena.

Gendered language of medicine in literate traditions can be explored in classical medical texts, medical educational materials, standards and principles of clinical practice, and other formal discursive materials that instruct and prescribe proper methods of “doing medicine.” Inquiry into the connection between the gendered past and the present also helps to determine gendered values in medicine (Selby, 1999). Gender-based ideology includes the use of gendered symbolism to convey ideas of illness and healing; metaphors of “naturalized” females and males; emphasis on the role of kinship, community, and place; gendered symbolic constructions of the human as a microcosm of the physical world; symbols of balance, mutuality, and cooperation deployed in the achievement of health; diagnostic practices that include a variety of visual and nonvisual perceptions as valid epistemological tools; and the degree to which the life cycle is medicalized. For example, research into the classic medical texts of Ayurveda by one Sanskrit scholar finds that the language of obstetrics presents women as mere vehicles for the nurturing and development of a perfectible male offspring (Selby, 1999). While the language of the medical texts does reflect Hindus’ desire for sons, other readings suggest complicated prescriptions for the proper nutrition, herbs, mental states, spiritual practices, environmental surroundings, and physical activities of pregnant women, that in fact far exceed those of modern Western medicine, and that require active vigilance by the woman, her female multiparous assistant nurses, and her Ayurvedic physician (Cameron, 2009c). The picture is one in which conception, pregnancy, and birth are the most complex of human conditions; these life processes were given substantial attention by generations of medical practitioners (albeit male), and the body of knowledge “owned” by male physicians could nonetheless legitimately be contradicted and overridden by experienced but nonprofessional women. Finally, within textual medical traditions like Ayurveda and Tibetan medicine we can examine the forms of gender symbolism and ideology that are employed by texts and practitioners to convey ideas of illness and health, medical authority, and medical performance to medical students, colleagues, patients, government officials, and to the general public.

Official discourse about gendered aspects of indigenous medicine is produced in a variety of contexts, including government policy statements, professional conferences and discussions, institutional mission statements, and nongovernmental NGO documents, to name a few sites where scholars conventionally have looked for greater understanding of health care development’s discursive practices. Elements of inquiry in such documents include biomedical-like regulation of indigenous medicine; links between public health and indigenous medicine; and statements about the value of indigenous medicine in state and NGOs’ short- and long-term health

care policies and programs. Educational institutions can provide important sources of data on gender-based trends in medical education, from students' perceptions of support from family, community, society, and the institution, to gendered content in educational materials, classroom lectures and discussions, differences in clinical assignments, and the integration of indigenous medicine alongside modern science in high school curricula.

Although the proposed framework focuses on formally educated practitioners, it would be important to know lay people's use of indigenous medical paradigms, too, and how exposed people are to medicine and medical discourse. Dimensions to explore here would include lay people's use of indigenous principles such as aggravated humoral imbalance, to explain illness episodes and health maintenance; the circulation of these ideas in the popular media; the level of advertising of indigenous medical products and practitioners; the self-use of indigenous medicine in the family; and the transmission of knowledge to patients.

The clinic is a central place to observe the application of scientific and subjective features of indigenous medicine, such as the valuation of objectivity, reliance on subjective experience and social factors as essential to care, sharing of knowledge with colleagues, clinical experimentation with new medicinal plant combinations, and the recognition of women's health care as unique and different from that of men. People can be asked to evaluate indigenous medical ideas and whether those ideas are gender biased, gender balanced, or gender neutral; the medicine's efficacy; the provisioning of female-centered therapy; the kinds of medications prescribed; and the goals of healing and health. Data specific to women's health can be ascertained by surveying the number of women and men seeking care, the reasons for women seeking care, views on women's reproductive health, the state's recognition of women's health problems and solutions, and the perceived impediments to women's improved health care.

We also can look at gender symbolism in a culture's ideas about nature in relation to gender. How does the language of gender and nature in Asian cultures compare with that of the West, and to what extent does it inform indigenous medicine?<sup>8</sup> For example, in contrast to the West's cultural

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<sup>8</sup> Of particular interest to feminist medical anthropology and feminist studies of European scientific knowledge is Western culture's historical relationship to nature. Translation of cultural ideas about nature into medical practice is an important source of information on the contemporary organization of ideas about gender, nature, and medicine. Science developed as the main arena within which to privilege a particular kind of rational knowledge about nature that is empirically based (Lloyd, 1993; Obeyesekere, 1992). Analogy and metaphor in scientific and medical thinking frequently display a history of cultural forms deriving from sexist and racist bias (Cohn, 1987; Stepan, 1986; Tuana, 1989), formed from original ideas about humans' colonizing relationship to nature. These include ancient ideas that associate maleness with active, determinate form, and femaleness with passive, indeterminate matter. Attempts to incorporate noncompetitive, mutualistic models of organismic interaction historically

representation of nature, Ayurveda does not seek to dominate nature and “fight” disease but rather looks for ways to assist nature in its course of healing. The naturalistic philosophical language of Hinduism and Buddhism articulated in Samkhya philosophy that forms the basis of Ayurvedic theory is a metaphorical language of dualistic transcendence that does not sustain differential valuation of the sexes (Larsen, 1979; White, 1996).

### Biomedical and Western Science Influences

Here I focus on ways researchers may ascertain the influence of allopathic medicine and Western scientific ideas of illness and health on patients and practitioners of non-Western cultures, specifically as biomedical science determines, constrains, and alters the organization of gender within local non-Western contexts. Scholars generally agree that governments are the most powerful force in regulating health care knowledge and practice, followed by NGOs, business interests (particularly the pharmaceutical and, to a lesser extent in developing countries, insurance industries), and patient–consumers, all of which in turn are influenced by global market forces. Socio-medical change occurs across the populations of practitioners and citizens who become increasingly state regulated via policy around health care, education, media, economics, and development. State’s incentives to modernize can transform local health-related contexts into sites of contestation over who defines and controls the health care landscape. A general trend that researchers have found is that the priorities of health care policy often are based on which medical practice is seen as most rational, modern, and profitable, and the inclusion of indigenous and traditional medicines into health care development depends on the degree to which it can serve those priorities (Banerjee, 2002; Janes, 2002; Nisula, 2006). State regulation of indigenous medicine that uses a standard derived from modern science rather than a local and culturally relevant standard significantly impacts indigenous medicine (Banerjee, 2002; Cameron, 2009a). In relation to gender transformation in medical-based ideology and practice, I am suggesting here that we pay close attention to how women providers are being impacted by biomedical and Western science forces, and how the two dimensions of the model discussed above—culture-specific gender organization and the knowledge and practice features of indigenous medicine—are, in fact, transformed in observable and measurable ways. Research locations for such an inquiry range from state health care officials’ offices to public health documents, from clinics to hospital wards, from pharmacies to forests of medicinal plants, and from the halls and lecture rooms of formal educational institutions to the conference rooms of NGOs working in health care development.

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have been rejected in favor of masculinist, competitive, and even militaristic metaphors (Keller, 1983; Martin, 1987).

I hypothesize in the model that practitioners will respond to biomedical modernity not in a single monolithic way but in a variety of ways, ranging from enthusiastic integration of modern ideas into traditional systems, to reluctant accommodation, to outright resistance to biomedical language, techniques, technology, and therapies (mainly drugs) in their practice. For some women professionals, modern allopathic medicine is a threat to traditional medicine, while for others, they feel their very survival as professionals depends on their willingness to integrate indigenous medicine with biomedicine (Nisula, 2006), a pressure they also may feel from their patients, whose interests often lie in fast cures, consistency, and competence with modern medical technology (Adams et al., 2005; Nisula, 2006). In relation to such findings that involve both practitioners and patients, we might dig a little deeper to ask if these processes are gender differentiated, and, if related to the struggle for legitimacy, whether that professional struggle is different for women and men practitioners.

The power of the instruments of state to shape medical pluralism leads to new positionings of traditional medical practitioners as a kind of bridge between the modern and the nonmodern, a bridge constructed from sometimes conflicting interests of cultural preservation, modern development, evidence-based medical resource allocation, and patients' demands. In the context of such medical transformation, we can evaluate if women physicians act as intermediaries between the state and the people in delivering messages of modern health care practices, as has been suggested for women in informal health care positions like midwifery (Pigg, 1995; Ram, 2001). Practitioners may be advocates for women's health care and indigenous healing traditions to governmental organizations and NGOs in a variety of ways, through professional activism or clinical practice. Interestingly, due to the plant-based nature of many indigenous medical systems, practitioners' awareness of and involvement in medicinal plant conservation may be an important expression of commitment to indigenous medicine, as it is in Nepal, even while incorporating Western scientific concepts of ecology and conservation. Finally, medical research programs and other knowledge production activities can be examined for their integration of modern ideas.

## CONCLUSIONS

Biomedicine is the most powerful ideological and practical force in contemporary international health care, and it is present in a variety of political, ideological, and material forms. The question of interest here is how modern biomedical and scientific ideologies and practices that bear on gender organization in health care are imported into indigenous Asian medical systems, and the significance of that importation as experienced by women practitioners. My research in Nepal, for example, indicates that biomedicine has

a conservative effect on Ayurvedic medicine, by compelling its practitioners to increasingly standardize and formalize the profession. Nepali women and men are differently involved in these kinds of official conversations and debates on medical science and health care transformation, and there is a concern over women's lack of voice in these issues. At a time when children's health in Asia is closely linked to women, and the success of nations depends on the wellness, education, and full participation of its women, we need greater recognition and understanding of the role that professional women doctors of indigenous medicine play in the official practice and evolving cultural paradigms of medicine in Asian countries. The model I have proposed and the research I hope it informs are important at a time when many countries are encouraging young women to study Western science. If indigenous medical theory and practice are less (or differently) gender problematic than has been demonstrated for Western medicine, and indigenous cultural paradigms of the body are so widely accepted, then supporting indigenous medicine and women's involvement in it potentially can increase women's participation and power in health care. Today's women medical professionals, if encouraged and supported, could serve as role models for aspiring female doctors of non-Western medico-science traditions.

Our efforts to better understand the impact on gender of modernizing indigenous medical systems can help reverse trends that may be negatively impacting women health professionals and women's health care. Such information would serve to greater inform the national and international health care development community of the role and significance of indigenous medico-science and its gender dimensions.

By evaluating women doctors' participation in health care delivery, their self-perception as professionals, their perspectives on national health care and the role of indigenous medicine, and by identifying obstacles to women's greater inclusion, efforts to include women in science and medicine fields can be enhanced. By evaluating women doctors' greater attention to women patients, health care delivery to women can be facilitated through improved health care policy that better incorporates indigenous knowledge and practices as these are valued by women. Recognizing, too, that children's health is closely linked with women, knowledge generated from such research can be incorporated into programs that potentially may reduce high maternal and infant mortality rates, improve women and children's nutritional status, and improve the general health status of Asia's people. By delineating the possibilities derived from indigenous medicine for an alternative modern scientific method and medical practice, the community of women international scientists can expand and evolve. Through the kind of research I am advocating here, we can better understand science as a social process, and new models for the production of scientific knowledge that include multiple informed perspectives can improve applications of scientific knowledge in people's lives.

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