Health traditions of Buddhist community and role of *amchis* in trans-Himalayan region of India

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Historically, for curing ailments, the inhabitants of Tibet, Ladakh and Lahaul-Spiti had practised shamanism that was prevalent in northern Asia under the name Ban. During the pre-Buddhist era, several forms of medical practice had existed in the trans-Himalayan region such as Ihaba (shaman) and Onpo (astrologer) and the prominent system of indigenous therapy developed in this desolate area was known as the Tibetan medical system, which has evolved on the basis of available bio-resources, minerals and beliefs. Amchis being the practitioners of this ethno-medical system, have enjoyed high respect and social status among the trans-Himalayan Buddhist communities. With the spread of Buddhism in the trans-Himalayan region, Ayurveda began to influence the Tibetan medical system. There is ample indigenous medical knowledge with many traditional amchis, which has been inherited from one generation to the next by word of mouth, and not yet documented. The present study deals with the Tibetan Medical System and the ingredients used in preparing various ethno-medicines to cure several ailments by amchis inhabiting Ladakh and Lahaul-Spiti region of Indian trans-Himalaya. A total of 337 plant species, 38 species of animals and 6 minerals were documented during the survey period. Among 83 amchis interviewed, 36% had disciples or students, primarily their own sons and daughters. The study reflects that the Tibetan system of medicine is declining in the study area due to shift in socio-economic patterns and unwillingness of the younger generation to adopt amchi as a profession.

Keywords. *Amchis*, bio-resources, Buddhist community, traditional health knowledge, trans-Himalaya.

THERE are diverse beliefs and practices among various traditional healers across the globe, but the aim of all is to cure ailments and maintain human health. Geographical factors have not only contributed to regional variations in such traditional therapeutic practices, but also have prevented close contacts among the various indigenous healers in different parts of the world. Human societies living in the high-altitude areas have remained isolated due to poor accessibility and harsh climatic and geographical conditions. Over the centuries, this isolation has shaped their unique art, culture and traditions of therapy. Tibetan community in the trans-Himalaya is one of such mountainous communities that had developed their own healthcare system based on the available natural resources. This system of therapy is well known today as the Tibetan medical system. Since *amchis* are the practitioners of this system of medicine, it is also known as *Amchi* medical system. There is ample literature available on Tibetan Medicine[1–7], yet the traditional knowledge, practices and beliefs of traditional *amchis* are undocumented, and passed on from one generation to the next by word of mouth. The present study thus aims to document the various ingredients used in preparing medicine by traditional *amchis* in the trans-Himalayan region of India. Attempts were also made to explore the historical perspective of the tradition, ways of curing diseases and role of *amchis* in Tibetan medical system along with future prospects of the tradition.

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Methodology

Study area

The Indian trans-Himalaya spans over 186,000 km^2 above natural treeline zone and is known for its sparsely distributed vegetation and relatively low species diversity. Ladakh region of Jammu and Kashmir contributes the highest geographical area (96,701 km^2) in the trans-Himalayan region of India, followed by Lahaul-Spiti in Himachal Pradesh, northern part of Sikkim and Uttaranchal. The present study is mainly focused on Ladakh (Suru, Zanskar, Indus, Nubra, Shyok, Hemis, Markha and Changthang)

and Lahaul-Spiti (Pin, Satluj, Lahaul and Kibber). The area is extremely cold during winter, when temperature goes down to –30 and –40°C. Annual precipitation decreases to the north and east, ranging from 500 to 1000 mm in the valleys just north of the Himalaya, to approximately 100 mm in the central trans-Himalayan valleys such as the Upper Indus near Leh[8].

Ladakh is located between 32°15′–36°N and 75°15′–80°15′E. It is bordered in the north by eastern range of Karakoram mountains, in the south by western extreme of the main Himalaya, and the Tibetan plateau abuts the northeastern tablelands of Ladakh[9]. The altitude, in general, ranges from 3000 to 7600 m. Eastern Ladakh after Taglang-la forms an extensive plateau, which acquires many large brackish water lakes such as Tso-moriri, Tso-kar and Pangong-tso. Administratively, Ladakh is divided into two districts – Leh and Kargil. Lahaul-Spiti lies between 31°44′–32°59′N and 76°46′–78°41′ E. It is bordered in the northeast by Tibet (China), in the north by Ladakh, and in the south by Great Himalayan ranges with average elevation of 4270 m. Lahaul-Spiti comprises two sub-divisions: Lahaul and Spiti.

The Indian trans-Himalaya sustains more than 1000 plant species, 225 avian species and many rare and endangered mammalian fauna, including the snow leopard[8,10–12]. The people of Lahaul-Spiti, central (Leh) and eastern Ladakh (Changthang) are predominantly Buddhist, while the population of western Ladakh (Kargil) has a high proportion of Muslims. Buddhists speak Tibetan dialects, while the Muslims of Drass and Kargil speak a form of dialect called Dard. Buddhists have their own culture and social customs similar to the Tibetans. In Buddhist-dominated areas the Tibetan medical system is popular, while in the Muslim-dominated regions the *Unani* system of medicine prevails. A large section of Buddhists still largely depend on *amchi* medicines due to the remoteness, high prices of allopathic medicine and scarcity of modern medical facilities.

Survey methods

Extensive literature survey[1–4,5,7,11,13–15] was carried out for the compilation of various traditional practices, beliefs and raw materials used for curing different ailments by *amchis* of the Indian trans-Himalaya. Although majority of information was collected from the secondary sources, field surveys were also undertaken during 1998–2001 to gather data on different aspects of the Tibetan medical system. Semi-structured questionnaire surveys were conducted among 83 *amchis* of Ladakh and Lahaul-Spiti to gather information. In order to assess the traditional knowledge among various age groups of *amchis*, they were categorized into four age classes, i.e. ≤ 25 (new generation or students of Tibetan medicine), 26–35 (young practitioners), 36–45 (adult practitioners) and ≥ 46 (old or veterans). To determine the ongoing trends in tradition, *amchis* were also interviewed on the number of disciples or students they had to carry forward this indigenous knowledge. Tibetan medical system practised by traditional *amchis* living in different valleys of Ladakh and Lahaul-Spiti was also studied and analysed through interviews.

Results and discussion

Brief history and evolution of Tibetan medical system

The earlier inhabitants of Tibet, Ladakh and Lahaul-Spiti had probably practised shamanism, which was prevalent in northern Asia under the name *Ban*[2]. During the pre-Buddhist era several forms of medical practices had existed in the trans-Himalayan region such as *Ihaba* (shaman) and *Onpo* (astrologer). In due course of time, the *amchis* under the influence of the Buddhism, probably have overshadowed these forms of medical treatments, as the entire region more or less had converted to Buddhism. Since the *amchis* were also the religious people, they had received more respect and faith. King Strongsten Gampo, founder of Lhasa city, is known to have introduced Buddhism in Tibet around AD 639, whereas in Ladakh, Buddhism was introduced much earlier during the 2nd century AD[16]. King Strongsten Gampo was also the person who had probably introduced the Tibetan script, which was adopted from Sanskrit Devanagari characters[2].

In due course of time, *Bauddha Bhiksus* (monks) introduced the knowledge of 'Ayurveda', and propagated it among their disciples in Ladakh, Lahaul-Spiti, Tibet and wherever they preached. Over a period of time, the term 'Buddha' was established to refer the medical practice being done by the *amchis* as Medicine Buddha (Men-la). Besides India, China, Mongolia, Persia and Nepal have contributed in the evolution of the Tibetan medicine. In fact, the science of 'Ser-khab' or golden needle healing, which is practised even today, was a discovery of the *amchis*[6]. The tradition of Buddhist medicine continued to flourish over the period; however, the contributions of Kumarafiva, Acharya Nagarjuna, Ashva Gosh and Chandranandan are worth mentioning in this regard. In the 8th century AD, a galaxy of Indian and Tibetan scholars had engaged in translation of Buddhist texts from Sanskrit to Tibetan, in order to popularize these difficult texts in Tibet. Yuthog of Tibet wrote comprehensive commentaries on these ancient texts in Tibetan[4].

About 900 years ago, during the reign of King Lhablama Ye-shes-od, the learning of Buddhist medicine was introduced in the province of Kuge and neighbouring areas in the western Himalayas. During that period, the Mtho-gling monastery played an important role in translating the later Buddhist medical texts from Sanskrit into Tibetan under the supervision of the translator Rinchen Bzanpo[4]. The 5th Dalai Lama (1617–87) is known to have established first school of Tibetan medicine at Garden Monastery in

Lhasa. Later, a medical college and hospital was also built near Lhasa at Chagpori. In 1916, the 13th Dalai Lama established a new college of Astrology and Medicine at Lhasa. In 1961, the 14th Dalai Lama in exile, established the Men-Tsee-Khang (Tibetan Medical and Astrology Institute, TMAI) at Dharamsala, Himachal Pradesh in northern India. There are many female students in this institute. The Chogpori Tibetan Medical Centre established by Lama Trogawa Rinpoche in Darjeeling may be regarded as traditionalist with strong links with the monastic tradition of education, where only males are accepted as students. In 1989, the Ladakh School of Tibetan Medicine was established in Leh, Ladakh that is affiliated to TMAI.

Medicine Buddha

There are many incarnations of the Lord Buddha such as Buddha Maitreya (sangye jampa), Buddha Dipamkar (sangye marmey zey), Buddha Amitabha (sangye voe pakmey), Buddha Sakyamuni (sangye shakya thubpa), etc. who had directly appeared on earth as human beings. Buddha emanations are in the form of a statue, or speech, mind, attributes and activities; for instance, the Tibetan Medicine Buddha. The original teachings of the ancient Tibetan medical system are generally attributed to the Buddha who is believed to have taught the roots of this tradition of Medicine Buddha.

The right hand of the Medicine Buddha holds a fruit of arura (*Terminalia chebula* Retz; a medicinal plant) and the left hand holds a begging bowl. His right hand is extended, palm outward, over his right knee in the gesture called supreme generosity. Arura is considered the best medicine in the Tibetan medical system. The position of his right hand and the arura which he holds, represent the eradication of sufferings. The name Medicine Buddha itself is a power to free one from the pattern of negative thoughts and emotions. It is believed that just by speaking, hearing or concentrating on his name, healing can be accomplished. In traditional Tibetan culture, meditation and working (or playing) with prayer wheels, chants and prayer flags all are used together with Tibetan medicine. The *amchi* focuses his attention on spiritual factors while treating any illness. Every *amchi* vows to 'regard medicine as an offering to the Medicine Buddha and all other medicine deities' and considers his 'medical instruments as holy objects'. Even in modern Tibetan pharmaceuticals the medicines which are a mixture of plants, animal organs, minerals and chemicals, are prepared with meticulous attention to religious rituals.

Amchi as a traditional institution

Amchis enjoy great respect and social status among the trans-Himalayan Buddhist communities. The meaning of *amchi* is self-explanatory in the Buddhist language; it means 'superior to all'. The *amchis* do not merely follow theoretical texts, but also have practical knowledge on making various ethno-medicines. The medical knowledge is passed on from one generation to the next by word of mouth. Traditionally, the *amchis* were primarily farmers, and medical practice was their secondary occupation. They used to offer their services free of charge; however in exchange one member of every household in the village used to help the *amchis* during planting and harvesting of agricultural crops. Gradually, like all economy-driven practices in the society, *amchis* also began to sell their knowledge and medicines.

The survey indicates that in Ladakh the *amchis* looked after 60% of public health, whereas in Lahaul-Spiti it was high up to 80%, primarily due to the poor infrastructure of modern healthcare system. In Ladakh, the highest concentration of *amchis* (55%) was found along the Indus valley, followed by Changthang plateau (19%) and Nubra valley (12%). Indus valley was the most populated area within Ladakh and many *amchis* from side valleys of Ladakh had also migrated to practice in Leh, especially during summer season. In Lahaul-Spiti, each village has one or two *amchis* and some from side valleys also had migrated to practice either at Kaza or Kelung headquarters of Spiti and Lahaul regions respectively.

It is interesting to note that *amchis* of the study area were apprehensive of their traditional practice due to fear of market forces in phasing out the tradition, which was making all modern facilities available even in remote corners. In order to continue their medical knowledge and practices, the *amchis* were eager to teach anyone who had a will to learn this tradition. Unfortunately, the tradition was not popular among the younger generation, due to its limitations for not providing enough income. In spite of the *amchis'* willingness to transfer their knowledge system to the next generation, at present most of the them (64%) did not have any disciple or student, indicating that the traditional *amchi* system of medicine is on the verge of decline in the Indian trans-Himalaya. Only 36% of the total *amchis* surveyed reported that they had a disciple, primarily their own sons and daughters (Figure 1 *a*). Majority of *amchis* (46%) were more than 45 years old, 32% were adults (36–45 age group) and only 20% were below 35 years of age (Figure 1 *b*). The trend indicates that there was a decline among the young generation to adopt *amchi* as a profession.

In Ladakh, being an *amchi* was part of the family tradition, as 84% of *amchis* adopted this tradition from their ancestors. There were only few *amchis* (about 16%) who obtained this knowledge from outside their respective families. This profession is mostly male-dominated, yet there were a few female *amchis*. The male : female ratio was 10 : 1. How good an *amachi* is depended upon his/her skills and the teacher from whom he/she had acquired this indigenous knowledge. Since the establishment of *Amchis* Training Centres in Dharamsala, Darjeeling, Ladakh and Manali, many *amchis* (35%) in the study area had gone through a

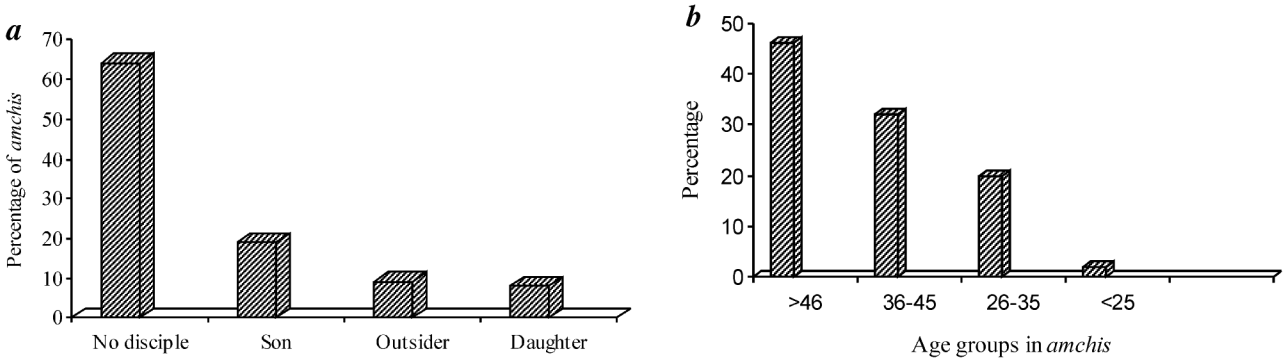

Figure 1. ***a***, *Amchis* with or without disciples to carry forward the Tibetan medical system in Ladakh and Lahaul-Spiti. ***b***, Age-wise classification of *amchis* in Ladakh and Lahaul-Spiti depicting the current trend in tradition.

proper training courses conducted at these centres. About 33% of *amchis* had clinics, most of them being in Leh.

In Ladakh, unlike Lahaul-Spiti, the Tibetan medical system was organized in terms of its social institutions spread across the region. Here, *amchis* had their own committees and social groups that helped them in sharing of medicinal plants and ethno-medical knowledge spread across the different valleys. The *amchis* of Changthang plateau had an association based at Nyoma, where almost all *amchis* of this region met together every year during 1–15 September and shared their knowledge and experiences as also raw materials (medicinal plants and other products). Apart from this, the State Govt in Jammu and Kashmir has an *amchi* association presided by a chief *amchi*. All *amchis* of Ladakh are members of this association, which provided some kind of subsidy to about 40 selected *amchis* at a given time. These selected *amchis* had got support from the association mainly in terms of financial help for purchasing and preparing medicines and also to enhance their own knowledge base.

Indigenous science of disease diagnosis

Amchis have developed three different methods for examining patients, viz. inspection, palpitation and interrogation. Among all the methods, examination by interrogation is considered the most important. However, before taking up a patient for treatment, it is necessary for an *amchi* to accurately examine the condition of the pulse with reference to etiology signs, symptoms and useful and harmful regimes[17]. The number of pulse beats during one respiratory cycle indicates the status of health. To know precisely if a person is healthy his/her pulse rate should be five beats per respiratory cycle. More or less number of beats per respiratory cycle indicates disorders[18]. When a child is born, he/she has three natural emotions – passion, aggression and desire; domination of any one of these brings about the different temperamental and constitutional composition in each individual. Therefore, the beat and movement of the pulse may differ with different unhealthy persons[18]. Some *amchis* believe that for Tibetan doctors, a clear understanding of the constitutional pulse in its entire dimension is important, not because of its mysteries, but because of potential confusion in future pulse readings, where it could be mistaken for an internal disorder, giving rise to a wrong diagnosis. The art of pulse diagnosis is difficult to understand and master.

Treatment techniques

Moxibustion and puncturing of veins: Mostly for the treatment of headache, paralysis, inflammation of joints and arthritis, moxibustion is used (H. R. Goyal *et al.*, pers. commun.). In moxibustion, flower heads of woolly plant species such as *Anaphalis* or *Gnaphalium* along with animal horns, iron, gold, and silver needles are burnt or heated and placed at certain parts of the body. The use of materials depends on the seriousness of the diseases. *Amchis* allows blood to ooze out for a certain period of time by puncturing of veins using a needle. Generally, this therapy is employed for blood and skin disorders.

Cold and hot water bath: A bath promotes the power of digestion, strength, longevity and energy. It cures itching, excessive perspiration, laziness, fetid smell, and burning sensation in the body. Rainwater, which has no taste, is considered pure and it is prescribed as cardio-tonic. According to *amchis*, it promotes longevity. In certain ailments bath is not suggested by *amchis,* especially for persons suffering from diarrhoea, flatulence, chronic cold and indigestion. Bath is discouraged after having meals. Hot-water bath is considered harmful for the hair, eyesight and general health. Use of stagnant water is discouraged and considered a major cause of filariasis and heart diseases.

There are hot springs in the valleys of Ladakh such as Chumathang, Panamik, Chilling, Markha, Serchan, and Pugga, with a large amount of sulphur and minerals. Bathing in sulphur springs was recommended for persons suffering from rheumatism. There are a few mineral springs, which flow for a certain period of the year and control medicinal

Table 1. Three purely plant-based medical formulations and their composition

A-gar 8	A-phyang	A-ru 7
Aquillaria malaccencis Lamk.	*Chrysanthemum* sp.	*Terminalia chebula* Retz.
Myristica fragrans Houtt.	*Arenaria glandulifera* Edgew.	*Mesua ferrea* L.
Bambusa pallida Munro.	*Terminalia chebula* Retz.	*Syzygium caryophyllaeum* Gaertn.
Saussurea costus (Falc.) Lipsch.	*Veronica ciliata* Fisch.	*Piper longum* L.
Terminalia chebula Retz.	*Picrorhiza kurrooa* Benth.	*Herpetospermum caudigerum* Wall.
Melia composita Willd.		*Amomum subulatum* Roxb.
Commiphora wightii (Arn.) Bhandari		*Nardostachys jatamansi* (Don.) DC
Mesua ferrea L.		

Table 2. Minerals and their uses in Tibetan medical system

Minerals/stone	Use
Gold	Promotes longevity
Silver	Dries up pus
Copper	Cures fever, dries up pus
Iron	Cures liver poisoning, eye diseases, anaemia
Pearls	Poisoning
Stones	Useful in therapy
Shilajit	Longevity, rejuvenation

properties for a limited period. Specific hot-water springs were recommended by *amchis* for curing particular diseases. For instance, Chumathang hot spring was recommended in curing backache, Markha for itching, and Chilling for backache and sciatica.

Medical formulations: The use of ethno-medicinal formulations prepared by *amchis* is the most important way of curing diseases. Plant material is the major ingredient in Tibetan medicine, besides animal products, minerals and salts. The medicine is rarely made up of a single constituent. It is most often a combination of 3 to 40 ingredients. The end-product is either in the form of powder (chema), tablet (rilvo), paste (degu), ointment (chukma) or decoction (thang). All except the ointment are taken orally. It was noticed during the survey that most of the trained *amchis* gave medicines mainly in pill form, that was manufactured by pharmaceutical companies or professional Tibetan drug manufacturers. Some of the Tibetan medicines were made up of purely plant species and their parts[5]; for instance, A-gar 8, A-phyang and A-ru 7. Three examples of purely plant-based medicine are given in Table 1. The numerical value given at the end of the medicine name denotes the number of plants used in preparing the respective medicine; for example A-gar 8, A-gar 12, A-gar 15, A-gar 17, A-gar 20, A-gar 31, A-gar 35, etc.

Use of minerals

Many minerals and stones are used in combination with plant and animal species for curing different ailments. During the survey, six minerals were documented which were used by the *amchis* (Table 2). The most important and wildly used mineral was 'Shilajit'. Locally Shilajit is called as *Tak-Joon,* which means rock extract. In Ladakh, Shilajit is mainly found in Brug Mar (Red rock) of Hemis, Melong Drak (mirror rock) of Tia, Jon (rock form) of Skindiyang, Hong (valley) of Skindiyang, Nyerma and Yarpa Gongma of Dumkhar.

Use of animal organs

The use of animal organs by *amchis* for treatment of various ailments is a common practice. A total 38 species of animals and their organs used in therapy were documented during the present survey; of these 31 were wild animal species (Table 3). These animals are distributed globally from ocean (e.g. corals) to high altitudes of the Himalaya (e.g. blue sheep, Tibetan antelope). The use of wolf tongue and antelope horns was admitted by 95% of *amchis*, which indicates the significance of these organs in Tibetan medicine. The most costly organs used by *amchis* were the musk pod of musk deer and gall bladder of Asian elephant.

Use of plants

Wild plants are the major ingredients in Tibetan medicine. Out of about 2000 drugs that have been used extensively in India, only 200 are of animal and mineral origin, while the rest are of plant origin[19]. According to a report of the World Health Organization, over three-fourths of the world population cannot afford the products of modern medicine and have to rely on the use of traditional medicines of plant origin. Each plant possesses some intrinsic potency. Some plants are toxic and poisonous, and hence are purified prior to use by special detoxification and purification methods. A total of 337 medicinal plant species found in Indian trans-Himalaya were surveyed and documented during the study. Among these, 45 species are placed in different threat categories according to the *Red Data Book of Indian Plants*, CAMP (Conservation Assessment and Management Plan) workshops and other existing literature[11,20,21]. Different parts of these plant species such as flowers, fruits, roots, tubers, bark, stems and leaves were used.

Table 3. Animal organs and their uses in Tibetan medicine

Animal organ	Animal	Use
Horn	Rhinoceros	Drying up pus and lymph
	Spotted deer	Drying up pus
	Gazelle	Diarrhoea
	Tibetan antelope	Child birth
	Wild sheep	Antibiotic
Bone	Human skull	Drying up pus
	Human scapular bone	Chronic fever
	Human hip bones	Tumour
	Domestic sheep	Intestinal pain
	Tiger	Weakness, bone fracture
	Domestic pig	Intestinal pain
	Monkey	Child birth
	Ungulate bones	Drying up lymph and pus
Flesh	Human	Poison, plague, epilepsy
	Snake	Eye disorders
	Vulture	Stimulating digestion power
	Peacock	Poisoning
	Otter liver	Reproductive disorder
	Marmot liver	Bone fracture
	Domestic goat liver, lung, kidney	Eye and lung disorders
	Wolf tongue, stomach	Tongue cures inflammation and stomach stimulates power of digestion
	Pig tongue	Cure growth of nodules in the bones
	Dog tongue	Ulcer
	Ass tongue	Diarrhoea
	Fox lung	Lung ulcer
	Bat	Vomiting
	Sparrow	Promotes semen production
	Lizards	Promotes semen production
	White-breasted dipper	Meat poisoning
Blood	Deer	Antibiotic
	Goat	Small pox
	Wild yak	Diarrhoea
	Coral	Fever
	Pig	Poisoning
	Ass	Rheumatism, eye disorders
Fat	Snake	Extraction of thorn, needle
	Deer	Parasitic infection
	Pig	Poisoning
Skin	Snake	Leucoderma, eczema
	Rhinoceros	Small pox
	Mouse	Extraction of pus
	Bull	Small pox
Nail	Crocodile	Fever
	Ass hoof	Reproductive disorder
	Horse hoof	Tumour
Hair, feather	Peacock	Poisoning
	Owl	Skin diseases
	Blue sheep hair	Poisoning
Urine/stool	Cow urine	Old fever
	Vulture droppings	Indigestion
	Pig droppings	Tumour
	Horse droppings	Parasitic infection and vomiting
	Rabbit droppings	Skin diseases
	Pigeon droppings	Inflammation
Bile	Common leopard	Respiratory disorder
	Snow leopard	Respiratory disorder
	Bear	Pulmonary affliction
Others	Ground beetle	Colic pain
	Musk deer	Antibiotics

Source: Dash[3] and interviews with *amchis* of Ladakh.

Table 4. Few important plant species used by *amchis* that are not found in Indian trans-Himalaya

Medicinal plant species	*Amchi* name
Aegle marmelos Corr.	Bilva
Pongamia pinnata Pierre.	Karanja
Emblica officinalis Gaertn.	Amalaki
Acacia catechu Willd.	Stol za
Cassia tora L.	Thalka dorje
Ricinus communis L.	Danrog kar-po
Bombax ceiba L.	Nagagesar
Butea monosperma (Lam.) Kuntze	Maruze
Melia azadiracha L.	Smag shing
Morus alba L.	Ose
Caesalpinia spiaria Roxb.	Shing kun
Cupressus torulosa D. Don.	Shukpal brugu
Punica granatum L.	Sebru
Terminalia chebula Retz.	Arura
Woodfordia fruticosa (L.) Kurz	–

Interviews with *amchis* for the inventory of medicinal plants made it clear that there was a lot of ambiguity in taxonomy. In practice, sometimes *amchis* used different names for the same plant species and sometimes one name for different plant species. In old transcriptions, Tibetan plant names have described with their medical function, but not always accompanied by a precise illustration. As a result, *amchis* have not had an unambiguous insight on the taxonomy and application of medicinal plants. Many times, a particular plant could not be found and a replacement was used. The colour of flower played an important role in the local nomenclature of medicinal plant species, as it was placed at the end of plant name such as Sgatig nag-po (*Swertia chiraiyta*), Solo mar-po (*Rhodiola heterodenta*), Lugru sher-po (*Pedicularis longiflora*), Gagchuk wong-po (*Geranium pratense*), Zigsolo mar-po (*Androsace rotundifolia*), etc. In Ladakhi language (a dialect of Tibetan language), nag-po stands for black, wong-po for blue, mar-po for red, sher-po for yellow, etc.

Depending on the availability, *amchis* used to collect medicinal plants from the nearby areas of their villages. However, most of the medicinal plants were collected from high passes and pastures. If the desirable species was not available in the nearby areas, then they shared medicinal plants with other *amchis* who had them. *Amchis* were not only dependent on medicinal plants found within Ladakh, but they used to go outside Ladakh or purchased these from any prospective seller. Some 15 important medicinal plant species used in Tibetan medicine gathered by *amchis* from outside of trans-Himalaya, as they occur only in tropical or temperate areas, are given in Table 4. Apart from higher plants (Angiosperms, Gymnosperms and Pteridophytes), lower plant species such as lichens were also used in preparing medicine by *amchis*. For curing chronic fever and poisoning, lichens were mixed with other ingredients to prepare a medicine.

Regarding the trade of medicinal plants and import from different regions, only a few *amchis* admitted that there was a trade in medicinal plants from their region. The procurement of medicinal plants was done either through barter exchange, or from the markets in Delhi and Amritsar. There was consensus among all *amchis* on the question of use of plants, but 2% expressed their ignorance on the use of minerals and 18% on the use of animal parts. The average money spent in the purchase of raw materials varied greatly among *amchis*, and it ranged from US $25 to 1500 annually[11].

Prescriptions in tradition for healthy life

Selection of proper diet and drug is recommended in the Tibetan medical system for maintaining healthy life. Also the food one takes and how it is taken, are also important for good health. The environment in which food is to be taken and combination of different types of ingredients with meals play important roles. If the person taking food is not peaceful and takes food in hurry, then even good food may not give him good health. According to *amchis*, mental disturbances due to unhappiness have an effect on the functioning of the gastro-intestinal tract, including liver and pancreas that results in chronic health hazards. Combinations of different meals prescribed for patients are also highlighted in both Tibetan medicine and Ayurveda. *Amchis* discourage their patients and even healthy persons from eating fish and milk together. It is believed that fish and milk are individually good for health, but when taken together they produce serious health hazards[3].

Prospects in tradition

The traditional system of Tibetan medicine is gradually declining in Indian trans-Himalayan region, as the new generation is hardly coming forward to adopt *amchi* as a profession. The older *amchis* have good knowledge on the medicinal plants and are able to identify these plants in the field. Whereas many new *amchis* do not make these medicines themselves nor do they get a chance to visit the field for identification of medicinal plants. Hence they are not able to identify the plant species. Accordingly, they are more dependent on the available Tibetan medicines prepared by various pharmaceutical companies. It is praiseworthy that State Governments, few NGOs and many *amchis* are doing their best to keep the tradition alive. They have organized new associations and *amchi* schools. They are also trying to popularize the traditional medical system, and have got encouraging results. Gradually, Tibetan medicine has gained considerable momentum in Western countries due to the growing awareness about the side effects of allopathic medicines. Many Tibetan herbal products of China and India are now known in the world market for their promising results and healing power.

At present, there are two ways to become a Tibetan doctor (*amchi*); one through a formal certified training

and second through apprenticeship under an *amchi*. Formal training has been introduced primarily in the main teaching schools offering seven-year courses. The established medical schools offer formal training where courses for students include memorization of medical texts, medical theory, practice of pharmacy, use of herbals and minerals, Tibetan grammar, debate on Tibetan medicine, medical astrology and astronomy. During the last stage of training, emphasis is given to practical work in which students spend at least two years in a clinic with a senior doctor before they are fully qualified to practice themselves.

To inculcate pride in tradition, sense of belonging and to propagate the Tibetan medical knowledge globally, His Holiness, the 14th Dalai Lama in exile (a Nobel laureate for Peace) has established the TMAI at Dharamsala. The Ladakh School of Tibetan Medicine is closely affiliated to the TMAI. There is a Tibetan Medical Centre in Darjeeling. The Tibetan Medical School and Central Institute of Higher Tibetan Studies in Sarnath, Varanasi also run a seven-year recognized course. Besides Tibetan medical course, Sanskrit and the Tibetan language are taught at graduate level to facilitate research work in these institutes. Recently, at Tungri in Zanskar valley an Amchi Institute has been set up, where half of the students are females.

Amchi associations such as the Traditional Medico-Cultural Association and the Yuthog Foundation are dealing with the preservation and promotion of Tibetan medicine. The aims of these associations are to provide healthcare facilities to the rural poor. NOMAD, an NGO in Leh is also dealing with revitalization of Tibetan medical system. In general, attempts are being made by different sections of the society to popularize this age-old tradition, and carve a niche among different healing systems prevalent worldwide.

The knowledge behind traditional systems such as the Tibetan medical system requires recognition, respect and understanding. Indigenous institutions, knowledge systems and traditional survival strategies are part of the mountain perspective that is not valued adequately in the march towards modernization. The greatest challenge in the new millennium is integration of the traditional knowledge system with the new and modern ones, to decelerate the pace of environmental degradation and for eco-friendly economic development.

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ACKNOWLEDGEMENTS. I acknowledge the help rendered by various institutions during the course of this study, especially the Wildlife Institute of India, the Environment and Mountain Development Institute, the Royal Netherlands Embassy, the Foundation for Revitalization of Local Health Traditions, G.B. Pant Institute of Himalayan Environment and Development, and the Forest Departments of Lahaul-Spiti and Ladakh. I also thank Drs Nima Manjrekar, Charudutt Mishra, V. P. Uniyal, Yashveer Bhatnagar, N. A. Farooquee and Mr Rajah Jayapal for help during the course of this study. I thank two anonymous referees for their valuable comments on earlier drafts of the manuscript.

Received 22 January 2005; revised accepted 13 June 2005