

This is a repository copy of *Ethnic Andean Concepts of Health and Illness in the Post-Colombian World and Its Relevance Today*.

White Rose Research Online URL for this paper:  
<http://eprints.whiterose.ac.uk/118449/>

Version: Published Version

---

**Article:**

Currie, Elizabeth Jean [orcid.org/0000-0002-6220-0281](https://orcid.org/0000-0002-6220-0281) and Ortega Perez, Fernando (2017) Ethnic Andean Concepts of Health and Illness in the Post-Colombian World and Its Relevance Today. *International Journal of Medical, Health, Biomedical, Bioengineering and Pharmaceutical Engineering*. 10007108. pp. 250-256.

---

**Reuse**

Items deposited in White Rose Research Online are protected by copyright, with all rights reserved unless indicated otherwise. They may be downloaded and/or printed for private study, or other acts as permitted by national copyright laws. The publisher or other rights holders may allow further reproduction and re-use of the full text version. This is indicated by the licence information on the White Rose Research Online record for the item.

**Takedown**

If you consider content in White Rose Research Online to be in breach of UK law, please notify us by emailing [eprints@whiterose.ac.uk](mailto:eprints@whiterose.ac.uk) including the URL of the record and the reason for the withdrawal request.

# Ethnic Andean Concepts of Health and Illness in the Post-Colombian World and Its Relevance Today

Elizabeth J. Currie, Fernando Ortega Perez

## I. INTRODUCTION

**Abstract**—‘MEDICINE’ is a new project funded under the EC Horizon 2020 Marie-Sklodowska Curie Actions, to determine concepts of health and healing from a culturally specific indigenous context, using a framework of interdisciplinary methods which integrates archaeological-historical, ethnographic and modern health sciences approaches. The study will generate new theoretical and methodological approaches to model how peoples survive and adapt their traditional belief systems in a context of alien cultural impacts. In the immediate wake of the conquest of Peru by invading Spanish armies and ideology, native Andeans responded by forming the Taki Onkoy millenarian movement, which rejected European philosophical and ontological teachings, claiming “you make us sick”. The study explores how people’s experience of their world and their health beliefs within it, is fundamentally shaped by their inherent beliefs about the nature of being and identity in relation to the wider cosmos. Cultural and health belief systems and related rituals or behaviors sustain a people’s sense of identity, wellbeing and integrity. In the event of dislocation and persecution these may change into devolved forms, which eventually inter-relate with ‘modern’ biomedical systems of health in as yet unidentified ways. The development of new conceptual frameworks that model this process will greatly expand our understanding of how people survive and adapt in response to cultural trauma. It will also demonstrate the continuing role, relevance and use of TM in present-day indigenous communities. Studies will first be made of relevant pre-Colombian material culture, and then of early colonial period ethnohistorical texts which document the health beliefs and ritual practices still employed by indigenous Andean societies at the advent of the 17<sup>th</sup> century Jesuit campaigns of persecution - ‘*Extirpación de las Idolatrias*’. Core beliefs drawn from these baseline studies will then be used to construct a questionnaire about current health beliefs and practices to be taken into the study population of indigenous Quechua peoples in the northern Andean region of Ecuador. Their current systems of knowledge and medicine have evolved within complex historical contexts of both the conquest by invading Inca armies in the late 15<sup>th</sup> century, followed a generation later by Spain, into new forms. A new model will be developed of contemporary Andean concepts of health, illness and healing demonstrating the way these have changed through time. With this, a ‘policy tool’ will be constructed as a bridging facility into contemporary global scenarios relevant to other Indigenous, First Nations, and migrant peoples to provide a means through which their traditional health beliefs and current needs may be more appropriately understood and met. This paper presents findings from the first analytical phases of the work based upon the study of the literature and the archaeological records. The study offers a novel perspective and methods in the development policies sensitive to indigenous and minority people’s health needs.

**Keywords**—Andean ethnomedicine, andean health beliefs, health beliefs models, traditional medicine.

E. J. Currie is with the Department of Archaeology, University of York, UK (corresponding author, e-mail [elizabeth.currie@york.ac.uk](mailto:elizabeth.currie@york.ac.uk)).

F. Ortega P. is with the Universidad San Francisco de Quito, Ecuador.

WHAT can the archaeological and ethnohistorical records tell us about the way people adapt their health beliefs and attitudes to illness in the face of warfare, social marginalization or persecution?

We are all familiar with distressing news images of migrant and refugee peoples, forcibly dislocated from their homelands to find safety and a new life elsewhere. Together with the few material possessions they are able to bring with them, they bring something far more sensitive and complex: the land and culture they have left behind, and the sense of their own identity related to that, in their minds. If the immediate humanitarian need for food and shelter seems basic, long term social and health needs of migrant and refugee peoples is far more complex.

Organizations meeting the needs of refugees and migrants have evolved sophisticated strategies and frameworks for the assessment, interpretation and implementation of longer term needs. But confronting peoples with very different ‘traditional’ understandings of the world presents both the peoples themselves and those charged with helping them, a complex challenge.

By using a study population with an historical experience of invasion, persecution, population displacement and marginalization, it is proposed that it should be possible to construct a theoretical model on how cultural beliefs and practices adapt to survive such change. A conceptual ‘bridge’ will be developed from the study population to generate a trans-cultural model for use with peoples from contemporary marginalized indigenous or First Nations’ cultures, or from migrant war-impacted refugee backgrounds, that informs best practice for the provision of culturally sensitive and appropriate health and social interventions. From this, a ‘policy tool’ will be constructed for application to the global policy agenda aimed at peoples with traditional medical beliefs and practices.

## II. HISTORICAL CONTEXT

The Spanish conquest of the Inca and Aztec empires in the first half of the 16<sup>th</sup> century is a well-known historical event, and one which not only cost them their autonomy, but their lives, their health, their cultures and the way that they understood and expressed the universe in which they lived. Invisible disease organisms carried from the Old World laid waste to the lives of millions of indigenous people, with depopulation rates exceeding 90% in many of the core population centers in both Mesoamerica and in Peru [1]-[3]. Now, progress in the translation and publication of many

original ethnohistorical documents in recent years has greatly enhanced our understanding of the subtler, more profound impacts to indigenous self-perception and construction of identity within a wider cosmological framework. Our understanding of the nature of the impact to autochthonous American cultures by invading European Renaissance and Christian paradigms has never before been better comprehended.

#### A. Taki Onqoy: Chanting Sickness

Meaning 'Chanting of Sickness' or 'The Chant of Sickness' in Quechua<sup>1</sup>, the Taki Onkoy was a spontaneous spiritual revivalist movement of the Peruvian central Andean region in the 1560s, led by traditional religious specialists.

Following a generation of the imposition of Spanish rule, Christianized doctrine and religious practices, during which time successive waves of European introduced epidemic diseases further decimated the Andean people, and zoonotics their camelids. As such, Taki Onkoy priests roamed the countryside spreading the word that the Spanish people, and more particularly their religious system, were responsible for the sickening of the Indian peoples, declaring, "You make us sick!" Although literally valid in terms of the real demographic impact of diseases such as smallpox, measles, influenza, bubonic plague and cholera amongst many others [4], [5], the concept of the sickness brought by the Europeans was altogether more nuanced, interpreted as it was through the distinctively autochthonous Andean cosmological belief system. Intrinsic to this were two related ideas: that in the forced conversion to a different concept of the sacred, ethnic Andeans had abandoned their '*huacas*' – their indigenous spiritual guardians responsible for their health and well-being; and that Spanish people from all social and governmental echelons were secretly conspiring to steal the body fat and blood of Indians, to make into an unguent to send to people back in Spain [6].

Blood, and body fat in particular, are understood to represent the vital essence of life for Andean peoples. Fatty people were considered healthy, appealing, beautiful, and vital. From the vantage point of history, we might be tempted to interpret this that Spaniards were not literally killing Indians to acquire their fat and blood, although certainly appropriating vital sustenance from them with which they enriched themselves and their kinsfolk back in Spain; indeed, as though they were 'living off the fat of the land'. However, there is some evidence to suggest that this may indeed have been more than just a baseless fear founded upon the real experience of indigenous suffering and exploitation. De Prybil [7] presents evidence for the existence of the '*Pishtaco*' – the fat stealer - based upon historical evidence of the use of human body parts, blood and body fat for the making of unguents, talismans and magical charms in many European cultures from the Middle

<sup>1</sup> Although often translated as 'dancing sickness', or 'a certain dance of sickness' Taky in Quechua from Ancash-Huailas means cantar (i.e. in Spanish 'to sing'), Onqoy means sickness; in Cajamarca and Cañari groups Taki is song and Takiy is singing; also in Ayacucho-Chanca and among the Quechua from Cuzco-Collao. Therefore, rather than a dance we translate it here as the "Chanting of Sickness".

Ages at least to the 17<sup>th</sup> century. The source for which, was often the executioner with his privileged access to the bodies of condemned people. The attitudes towards and treatment of the physically dead human body were just one aspect of the overall schism in ontological understanding. Indigenous Andean mortuary beliefs venerated the dead as ancestors, understanding there to be a perpetual recycling of cosmic energy through them (including their physical remains as *mallquis* – mummies), back into the world of the living, re-affirming community identity, legitimacy and territorial ties. To have observed European barber-surgeons' or executioners' use of human body parts (as with the corpses of condemned people, including indigenous people for example), would have justifiably exacerbated the belief that not only were Andeans exploited for their labor and their tribute, but also literally for their vital body substances – those deemed most potently significant. Even recently, in San Pedro de Casta in Huarochiri, Peru, people continued to believe in the spirit of an old Spaniard living at the bottom of the mines, who took the fat from miners, referring to it as '*Pishtaco*'. After several months of working there, some miners became sick and emaciated.

The Taki Onqoy rebellion was short lived, being quickly crushed by Viceroy Francisco de Toledo, and it is probably unlikely that it ever had a more extensive influence than the central sierra regions of Peru. The Spanish renewed their zealous campaigns of eradication of indigenous religion, targeting the 'dogmatizers' – the religious specialists in particular – whose power and influence with the wider indigenous population they greatly feared [8]-[11]. But the nature of the Taki Onkoy movement and of the concepts driving it give us a clear insight into pre-Columbian belief systems encompassing social and bodily health.

### III. METHODOLOGY

The first phase of the research has sought to identify core pre-Columbian and early historical ethnic Andean concepts and beliefs about the human body in its wider cosmological setting, and how health and illness is understood within this. These core conceptual data will inform the second phase of fieldwork, involving the construction of a questionnaire to take into contemporary Andean study populations in the Ecuadorian sierra. With this we expect to be able to determine the relative pattern of survival and change of these beliefs into the present day.

There are three key sources of data: i) the large corpus of archaeological material culture (principally pottery and decorative motifs) demonstrating pre-Columbian beliefs and practices; ii) early colonial period Spanish documents which detail, through their own words, the beliefs, rites and practices of many of the indigenous religious specialists who found themselves before the ecclesiastical courts; iii) ethnographic studies of the beliefs and practices of more recent historical or contemporary Amerindian peoples.

#### A. Archaeological Evidence

The so-called central Andean 'health axis' [12] stretches from Ecuador in the north to Bolivia in the south, with an

antiquity dating back into the earliest prehistoric periods. Healing lore, centered on the use of traditional medicinal and psychoactive plants, was part of a wider complex cosmology based upon shamanistic practices, with healing scenes and healers frequently depicted in pottery [13]-[16].

At the time of Spanish imperial expansion, Spanish medical knowledge was still very much an expression of Renaissance Aristotelian understandings of the human body, in an age before such fundamental medical advances as by William Harvey on the circulation of blood in the early 17<sup>th</sup> century or John Hunter the anatomy of the human body later in the 18<sup>th</sup> century. But this was not the case in the pre-Colombian Andes.

The archaeological record consisting of material culture, human skeletal and ethnobotanical evidence testifies amply to the expertise of pre-Colombian doctors and surgeons, with a very sophisticated understanding of the human body and the different pathologies affecting it. However, that human body in its wider cosmological context was visualized or understood, there is evidence for a wide range of sophisticated medical interventions including bone setting, craniotomy and trephination demonstrating a clear anatomical knowledge [17], [18]. Early colonial sources make it equally clear that the Spanish completely misunderstood or underestimated these skills, and that, following the rapid demise of the Inca Empire in the later 16<sup>th</sup> century such early medical wisdoms and skilled interventions were wholly lost. Although the skilled herbal knowledge of indigenous specialists was rather more tolerated, occasionally even encouraged, there was still an innate distrust of it, and more particularly the ritual context within which it was used and the potential occult powers of the specialists who employed it. In 16<sup>th</sup> century Mesoamerica, Nicolas de Monardes mentioned that local medicines were so abundant and the local knowledge so vast that no European doctors were needed [19], [20].

#### B. Ethnohistorical Sources

Following the conquest of the Inca Empire by Spain in 1532-34, the conscious intention was to eradicate all forms of indigenous Andean religious belief and its ritual expression regarded as idolatry and superstition, and transform the indigenous peoples into meek and compliant Christians and Spanish subjects.

There are two principal ethnohistorical sources that inform this study with reference to indigenous Andean religious beliefs. The first group consists of the several chronicles of Inca and Andean religion written by different Spanish authors dating to the 16<sup>th</sup> and 17<sup>th</sup> centuries [21]-[23]. While the second are a large corpus of documents dating mainly to the 17<sup>th</sup> and early 18<sup>th</sup> centuries in Peru, which are the records of the trial proceedings transacted during the Jesuit programmes of the 'uprooting of idolatry' - *Extirpación de las Idolatrías* (although see Salomon [24]).

Both sources, contain substantial details of the beliefs and practices of many indigenous Andean religious specialists, many of whom found themselves before the ecclesiastical courts on charges of idolatry and sorcery. The intellectual

framework employed by the Spanish clergy and Jesuit prosecutors was directly imported from that of European witchcraft and sorcery in the Iberian Peninsula, wherein sorcerers and idolaters were framed as not only as heretics, but as fraudsters and imposters. As heavily filtered as they are – through the words of the court translators from Quichua into Spanish, and through the framework of European demonology, which denominated the autochthonous Andean spiritual intermediaries – *huacas* and *apus* – as 'el demonio' (the Devil), the nature of the pre-Colombian understanding of the metaphysical world, its attendant arcana can be interpreted.

#### IV. PRECOLOMBIAN HEALTH BELIEFS AND PRACTICES

In the pre-Colombian Andes, health and the physical well-being of both the community and the individual depended on the maintenance of harmonious and balanced reciprocal relations between humans and their tutelary deities (*huacas*). They were resident in the natural phenomena around them, through the offering of libations or sacrifices to the mountains, springs, stones and rock faces to restore the health of a sufferer [25], [26].

Andean peoples believed that harmony was necessary for the balance between the spiritual and physical dimensions of human existence. Moral transgressions, or the infringements of customs and ritual, including the economic and social order destabilized this balance or represented an imperfection or something that was missing from the whole. Atonement for moral transgressions was thus critical in the healing process [27]. Order would be re-established across physical, environmental and social domains if the lack of perfection was appropriately addressed. The function of Andean ritual in curing illness therefore is to restore the cyclical balance between people and their environment, not merely to cure one individual of their illness [28]. Modern Andeans still believe in the causal interrelationship of illness with social and environmental causes and symbolically conceptualize their health in terms of moral, economic, and social well-being, which redresses cultural, social and economic maladies which do affect their well-being [29].

Thomas [30] reminds us that western modernity, which divides the sacred from the profane, spirit from matter, mind from matter, "has given rise to quite unique, perhaps even aberrant, ways of being human", whereas indigenous cosmologies, both past and present, generally experience reality as an undivided whole. An individual cannot be viewed as distinct from their wider social and cosmological context [31]. In the Andes, the relationship between cosmology and the body was complex and in addition to breaking down the human body into its constituent physical components, Andean peoples, and Inca physicians in particular, subdivided the body into physical, cosmological and metaphysical parts. The human body was seen to mirror the physical cosmos [32], [33].

## V. CURRENT ANDEAN BELIEFS AND PRACTICES

Among indigenous communities today, not only Kichwa people but other indigenous cultures, the human body is considered as a container. Diseases and spirits “enter” and “occupy” the body. Depending upon the kind of healer, there are different ways of conducting the healing. The Andean *yachak* (shaman) has to expel the disease, through a process that sucks out the magical arrows that entered the body and then spit them away from the patient’s body. The *cuy* (guinea pig) -reader ‘passes’ the still living *cuy* over the patient’s body, and the *cuy* extracts the disease from the interior organs of the patient. In this belief system, children’s souls are considered particularly volatile, and at certain times might leave the body; they can also become trapped out of the body by the mountain - “*el cerro*”. In such cases, an experienced *yachak* must find and return the soul to the body, restoring life and health to it.

Andean health beliefs are but one aspect of a diametrically different world view which challenge conventional Western biomedical paradigms of disease with their divisive focus on symptomatic illness outside of the broader socio-economic-political context of the sufferer. This medico-scientific understanding materializes the human body in a way that is not how people from indigenous cultures experience their own bodies [34].

### A. Continuity of Beliefs in an Andean Context

To demonstrate the continuity of these beliefs, we describe three examples of causal interrelationship of illness with cultural and environmental explanations in San Pedro de Casta, Huarochiri, Peru.

#### The Case of “Gentiles” as a Cultural Cause Affecting a Child’s Ear

At San Pedro de Casta, Huarochiri, Peru, an indigenous woman was seen dripping a little breast milk into the ear of her crying infant. When asked why she was doing this, she explained that she was curing the “gentiles” that had entered into his ear. The gentiles were spirits of people who died before being baptized by the Catholic religion during the first days of the Spanish conquest and their spirits are still presents in rocks, hills or near the “*chulpas*”, ancestral tombs of the region. These “gentiles” enter the body and cause illnesses such as ear ache and as milk is understood as being good food, it was also believed to help to cure the child’s ear infection.

#### The Case of “El Cerro” as an Environmental -‘Magical’ Cause of Digestive Disorders [35]

In the same community, a young mother requested medical attention for her baby who presented with fever, vomiting and diarrhea. The six months old child had been crying during the previous 12 hours since they returned from the sunny “*chacra*” (small piece of agricultural land) after harvesting some potatoes. After examining the baby, I asked the mother what she believed could be the cause of his symptoms. She replied that she had placed the child to sleep over a warm rock while she was collecting the potatoes. She also explained that her husband told her that probably the mountain spirit

captured the child’s soul. Then, he went back to the piece of land to pay the “*cerro*” spirit with offerings and praying to recover the child’s soul and health.

### The Andean Ritual for Water [36]

In another example of the relationship between human behaviour and mountain spirits, we describe the diviner's role revealing his spiritual power of connection with the gods, during a secret ceremony of sacrifice, accompanied by the main traditional authorities of the San Pedro de Casta community in October 1980. This was a collective response considered appropriate to address the adverse conditions and to reorder the relationship between the community and Pariapungo, the mountain god who administered the water.

Following a protracted drought of nine months’ duration, sickness, malnutrition and poverty, which were linked to environmental and social disturbances, a local ancestral ritual was performed with the goal of reducing the perceived conflict and to redress the relationship with the “god of the water” by bringing him prayers and symbolic offerings.

After a long morning supervising the community activities of cleaning the water canals and artificial lakes<sup>2</sup>, and a few minutes after the main traditional authorities of San Pedro de Casta prayed to Wanakirma, (the Huarochiri goddess of fertility), the group was led by the cura (the diviner), to enter a small rocky cave located at 4,700 meters of altitude. The cura waited until the last member of the group entered and kneeled over the sandy surface of the cave’s soil. Digging into the sand with both hands, he prayed to Pariapungo saying: “Charay, charay”, this is the offer of your children begging for water. We all have behaved well during this last year accomplishing our duties and chores, but waters are not arriving to our lands. Please give us the needed water. After saying this, we all left the cave, and received the first tiny drops of water in our hands and smiling faces. Good community behaviour and respectful praying to Pariapungo became the effective way to obtain the precious and demanded resource [37].

Similarly, with the Kollawayaya people in Bolivia, curing is accomplished by gathering the members of the sick person’s social group in ritual, and together feeding all the parts of the mountain, which is correspondingly made complete, restoring health to the sick person's body in a metaphorical way. Metaphysically, Ayllu Kaata is an organic entity brought into being by exchange, work, and ritual, and this reflects the health of Andeans [38].

Syncretism of spiritual beliefs and cultural behaviors related to health are common in many spiritually significant sacred places and often this can be seen in natural landforms such as lakes, mountains or waterfalls. This is particularly the case with pre-Colombian Andean *huaca* and *apu* worship (*apus* are a particular kind of powerful *huaca*, a spirit of the mountain peaks). However, health beliefs such as these are also part of many cultural and religious traditions globally.

<sup>2</sup> San Pedro de Casta, pre-Inca ancestral irrigation system of 12 kilometers of water canals and reservoirs.

## VI. MODELLING HEALTH BELIEFS: CORE CONCEPTS EXPLORED

We offer here a model of the nature of indigenous Andean belief systems related to health and healing which highlights processes of change through time (Tables I-III). Identity emerges as a core concept in modelling Andean health beliefs, as illness and healing both convey and alter conceptions of identity in complex and shifting social landscapes; bodies, suffering and treatments are integrated into other aspects of cultural reality [39].

The four core dimensions or states identified, at both individual and communal levels, are intrinsically interlinked into the economic and social order, and to the wider environment. They are: i) Wholeness; ii) Identity; iii) Lineage/ethnicity; iv) Balance/equilibrium.

There are two key outcome states: identity/legitimacy and (mainly) 'health', with the function of 'ritual', performed by specialists to negotiate between 'State' and 'Outcome' to restore balance/health in individuals/groups and/or to affirm connectedness with the Whole through identity/legitimacy. To maintain health, ritual specialists had to determine what was missing and then complete it by ritual exactness [40].

## VII. DISCUSSION

A perception prevails that the New World was disease-free before the invasion of Old World pathogens that decimated indigenous populations [41]-[43]; that, indigenous peoples enjoyed relative states of good health, but, of course, this was not the case. As Alchon [44], [45] points out, the list of indigenous afflictions predating 1492 is long and may also include major killers such as typhus<sup>3</sup>. The question, then, is how indigenous peoples understood these endemic illnesses which had travelled and evolved with them since their entry into the New World at the close of the Upper Paleolithic over 15,000 years ago. And therefore how differently they experienced the invading alien pathogens as part of a wider impact of the Spanish conquistadores themselves as vectors of that morbidity and mortality, not just to people, but to their entire cultures and belief systems. "You make us sick" was an idea that encompassed a cosmic reality far broader than 'mere bodily health'.

In the wake of the conquest by Spain and despite the campaigns of persecution of indigenous religion which followed, is clear that, far from eradicating pre-Colombian health beliefs and practices, the autochthonous Andean conceptual basis for understanding their world and the place and well-being of people within it survived, albeit superficially influenced by Catholic Christian religious symbolism. Indeed, in the growing climate of tolerance, even encouragement of traditional culture and medicine, as promoted in the 2003 United Nations Convention for the Safeguarding of Intangible Cultural Heritage [46], from whatever core surviving relict of these traditions which persisted in remote communities down through the centuries, there is now a resurgence which seems unaffected by the

growth in the availability of modern conventional biomedicine. And in this modern tourism with a global interest in South American shamanism has become a significant driver.

Today in indigenous Andean communities, religious specialists (in Ecuador called *Yachakuna*) are still central to the well-being of their communities through their dual role as diviners and healers. However, until relatively recently, it was still the case that Andean shamans in the sierra of Ecuador were imprisoned by community police for performing traditional therapies and rituals [47].

## VIII. CONCLUSION

Twenty first century Andean society is heterogeneous, consisting of hundreds of different cultures. If culture is "that complex whole, which includes knowledge, belief, arts, morals, law, custom and any other capabilities and habits, acquired by man as a member of society", as defined by Tylor [48], then, the Andean region represents a multicultural world composed of very complex cultural expressions of knowledge, values and customs. Hundreds of these cultural manifestations are still vital and preserved among those distinctive cultures for more than 10,000 years.

Culture as a social experience, determines how their members define health, recognize illness, and propose treatment. Based on the multicultural nature of Andean society, it is basic to assume the existence of a series of health models as an authentic expression of each of the cultural groups currently present in the Andes [49].

Providing only one health model of a multicultural society reflects a lack of cultural sensitivity among proponents of such an approach. All varied beliefs and values of all local Andean cultures have legitimized their presence for centuries, as well as their survival, resilience and current use that influences individual perceptions about health and illness, and the role of modern and traditional approaches of health within the structure of the current Andean society.

The second major phase of fieldwork for this study beginning in September will reveal the extent to which traditional Andean health beliefs and practices survive in the three study groups of Tingo Pucará, Guangaje, Salasaca and Jambi Huasi, Otavalo in the Ecuadorian central and northern sierra regions. In parallel with this, we will also conduct a survey of the attitude of conventional medical practitioners in the same regions towards traditional medicine and traditional healers. With data from this survey phase, we will refine and develop the multi-dimensional interactive health beliefs and practices models. We will also develop policy approaches that reconcile and integrate both into a more culturally meaningful provision of effective primary, secondary and tertiary health care services for indigenous peoples in the Ecuadorian Andes.

<sup>3</sup> leishmaniosis, Chagas' disease, toxoplasmosis, amoebiasis, bartonellosis and treponemas.

TABLE I  
ANDEAN CONCEPTUAL UNIVERSE

| STATE            | ACTUAL             | RITUAL                       | OUTCOME             |
|------------------|--------------------|------------------------------|---------------------|
| Wholeness        | spirit/essence     | ritual/intermediary animal   | Life/Health         |
| Breach of custom | Sin                | ritual correction/confession | Order-Health        |
| Ethnicity        | origin/ancestor    | mythic/remembrance           | identity/legitimacy |
| Alien            | displaced/rootless | Disconnection                | non-being           |
| Equilibrium      | Balance            | duality acknowledged         | Order-Health        |
| Imbalance        | Illness            | 'completion' therapy         | Order-Health        |
| Health           | Balance            | Huaca                        | Order-Health        |
| Disease          | Imbalance          | Therapy                      | Health              |
| Birth/being      | Born               | Naming                       | identity/legitimacy |
| Dead             | Death              | Funerary                     | identity/legitimacy |

TABLE II  
CAUSES OF ILLNESS IN TRADITIONAL ANDEAN ECUADOREAN MEDICINE [50]

| SUPERNATURAL CAUSES |         |                 | NATURAL CAUSES   |   |
|---------------------|---------|-----------------|--|---|
| Divine              | Inhuman | Human           | Inbalance or Disequilibrium  | Natural in the strict sense               |
| Gods                | Ghosts  | Witches         | Natural forces/being human   | Traumas                                   |
| Saints              | Spirits | Ancestors       | Hot/cold   | Accidents                                 |
|                     | Demons  | Ordinary people | Transgression of taboos  | Intoxications                             |
|                     | Souls   |                 | Sexual transgressions  | Parasitosis                               |
|                     | Goblins |                 | Extreme poverty  | Infections                                |
|                     | Rainbow |                 | Eating disorders: mal nutrition  | Hereditary                                |
|                     | Fumes   |                 | Psychological disorders: excessive emotions, emotional pain, madness, bad temper, insomnia | Illnesses of 'white' people:cancer, sores |
|                     |         |                 | Physical or intellectual excess of work  |   |

TABLE III  
ANDEAN CONCEPTION OF THE INTERACTION OF THE FOUR WORLDS

| HUMAN   | NATURAL   | SPIRITUAL              | ANCESTRAL                     |
|---|---|------------------------|-------------------------------|
| Diseases of the earth or the countryside  |   | Diseases caused by God | White persons' illnesses      |
| Soul loss; soul fright; evil eye; fright; caught by the hills, (bad)wind, hurrican, river, waterfall, lake, stone | Illness sent by God as a test or as divine punishment: arthritis, tendonitis,mialgias, colds, bone pain, aftermath of wounds, smallpox, measles |                        | Cancer, measles, tuberculosis |
|   | Rheumatism, cold, cholc and diarrhea through cold   |                        |                               |

#### ACKNOWLEDGMENT

This project 'MEDICINE. Indigenous concepts of health and healing in Andean populations. The relevance of traditional MEDICINE in a changing world' is funded through the European Commission Horizon 2020 Research and Innovation programme.

Grateful thanks are expressed to the Comunidades de Tingo Pucará, Guangaje and Salasaca, Ecuador for their hospitality and help during our early fieldwork visits.

Thanks also to Dr Diego Quiroga, Universidad San Francisco de Quito, Ecuador for his ever valuable insights and ideas.

#### REFERENCES

- [1] M. Livi-Bacci, "The Depopulation of Hispanic America after the Conquest". *Population and Development Review*, vol. 32, no. 2, pp. 199-232, 2006.
- [2] L. Newson, *Life and Death in Early Colonial Ecuador*. Norman: University of Oklahoma Press, 1995.
- [3] D. H. Ubelaker, "Patterns of Demographic Change in the Americas". *Human Biology* vol. 63, no. 3. Special Issue on the Biological Anthropology of New World Populations, pp. 361-379, June 1992
- [4] J. Aberth, *The First Horseman. Diseases in Human History*. Connections: Key Themes in World History. Pearson Prentice Hall, 2007.
- [5] S. A. Alchon. *Native Society and Disease in Colonial Ecuador*. Cambridge, New York, Melbourne: Cambridge University Press, 1991.
- [6] C. Brosseder. *The Power of Huacas. Change and resistance in the Andean world of colonial Peru*. University of Texas Press, Austin, 2014.
- [7] R. De Pribyl, "Evidencias medico antropológicas sobre el origen del Pishtaco". *Revista Peruana de Medicina Experimental y Salud Pública*. vol. 27, no 1, pp. 136-137, 2010.
- [8] C. Brosseder. *The Power of Huacas. Change and resistance in the Andean world of colonial Peru*. University of Texas Press: Austin, 2014.
- [9] N. Griffiths, *The Cross and the Serpent. Religious Repression and Resurgence in Colonial Peru*. Norman: University of Oklahoma Press, 1996.
- [10] S. MacCormack, *Religion in the Andes. Vision and Imagination in Early Colonial Peru*. Princeton, New Jersey: Princeton University Press, 1991.
- [11] K. Mills, *Idolatry and its Enemies. Colonial Andean religion and extirpation, 1640-1750*. Princeton: Princeton Academic Press, 1997.
- [12] L. Camino, *Cerros, plantas y lagunas poderosas: La medicina al norte del Perú* Lima: Lluvia Editores: Lima, 1992.
- [13] R. W. Bussman and D. Sharon. "Traditional medicinal plant use in Northern Peru: tracking two thousand years of healing culture." *Journal of Ethnobiology and Ethnomedicine*, Nov. 2006, pp. 2-47.
- [14] R. W. Bussman and D. Sharon. "Two decades of ethnobotanical research in Southern Ecuador and Northern Peru". *Ethnobiology and Conservation* 2014, 3:3 (12 June 2014) doi:10.15451/ec2014-6-3.2-1-50
- [15] P. Stahl, "The Hallucinogenic Basis of Early Valdivia Phase Ceramic Bowl Iconography". *Journal of Psychoactive Drugs*, vol. 17, no. 2, pp. 105-123, 1985.
- [16] J. E. Staller and E. J. Currie. *Mortuary practices and ritual associations: Shamanic elements in prehistoric funerary contexts in South America*. Oxford: Archaeopress., 2001.

- [17] J. G. R. Elferink, "The Inca healer: empirical medical knowledge and magic in pre-Columbian Peru". *Revista de Indias*. Vol. 75 no. 264, pp. 323-350, 2015.
- [18] R. G. Mendoza, "The Lords of the Medicine Bag: medical science and traditional practice in ancient Peru and South America." In *Medicine Across Cultures. History and Practice of Medicine in Non-Western Cultures* edited by Helaine Selin. Dordrecht, The Netherlands: Kluwer Academic Publishers, 2003, pp. 225-258.
- [19] J. M. López Piñer., *Asclepo: Archivo Iberoamericano de historia de la Medicina y Antropología Médica*, pp. 3-68 1990.
- [20] R. Bye, and E. Linares. 2016. "Ethnobotany and Ethnohistorical Sources of Mesoamerica". In *Ethnobotany of Mexico. Interactions of People and Plants in Mesoamerica*. Edited by Rafael Lira, Alejandro Casas, José Blancas, 2016, pp.41-65
- [21] J. de Diez Betanzos. *Narrative of the Incas*. Translated and edited by Roland Hamilton and Daba Buchanan from the Palma de Mallorca manuscript. Austin: University of Texas Press, 1996 (1557).
- [22] C. de Molina, Cristóbal Relación de las fábulas y ritos de los incas. In *Fábulas y mitos de los incas*, edited by Enrique Urbano and Pierre Duviols: *Historia* vol. 16, pp. 6-134, Madrid. 1989.
- [23] P. Sarmiento de Gamboa, *Historia de los incas*. Madrid: Miraguano Ediciones, Ediciones Polifemo, 1988.
- [24] F. Salomon, "Shamanism and politics in late colonial Ecuador". *American Ethnologist*, vol. 10, no. 3, pp. 413-428. 1983
- [25] C. Brosseder. *The Power of Huacas. Change and resistance in the Andean world of colonial Peru*. University of Texas Press, Austin, 2014.
- [26] N. Griffiths, *The Cross and the Serpent. Religious Repression and Resurgence in Colonial Peru*. Norman: University of Oklahoma Press, 1996.
- [27] R. G. Mendoza, "The Lords of the Medicine Bag: medical science and traditional practice in ancient Peru and South America." In *Medicine Across Cultures. History and Practice of Medicine in Non-Western Cultures* edited by Helaine Selin. Dordrecht, The Netherlands: Kluwer Academic Publishers, 2003, pp. 225-258.
- [28] J. Bastien, "Metaphorical relations between sickness, society, and a land in a Qollahauya ritual". Chapter 2 in *Health in the Andes*, edited by Joseph W. Bastien and John M. Donahue. *American Anthropological Association*, Washington. 1981, pp: 19-37.
- [29] G. L. Urioste, "Sickness and Death in Preconquest Andean Cosmology: The Huarochiri Oral Tradition". Chapter One in *Health in the Andes*, edited by Joseph W. Bastien and John M. Donahue. Washington: American Anthropological Association, 1981, pp: 9-18.
- [30] J. Thomas, "Death, identity and the body in Neolithic Britain". *Journal of the Royal Anthropological Institute* vol. 6, pp. 653-668, 2000.
- [31] J. Bastien, "Metaphorical relations between sickness, society, and a land in a Qollahauya ritual". Chapter 2 in *Health in the Andes*, edited by Joseph W. Bastien and John M. Donahue. *American Anthropological Association*, Washington. 1981, pp: 19-37.
- [32] J. W. Bastien, *Healers of the Andes. Kallawayas Herbalists and their Medicinal Plants*. Salt Lake City: University of Utah Press, 1987.
- [33] C. V. Classen. *Inca Cosmology and the Human Body*. Salt Lake City: University of Utah Press, 1991.
- [34] J. Thomas, "Death, identity and the body in Neolithic Britain". *Journal of the Royal Anthropological Institute* vol. 6, pp. 653-668, 2000.
- [35] F. Ortega P., "Ritual and symbolic experiences while living in San Pedro de Casta". Anthropological field work notes 1979, 1980. Unpublished.
- [36] F. Ortega P., Universidad de San Francisco, Quito, Ecuador: "Culture, Nutrition and Health: the case of San Pedro de Casta, Huarochiri, Peru". 1979-1980. Unpublished MA dissertation.
- [37] F. Ortega P., "Ritual and symbolic experiences while living in San Pedro de Casta". Anthropological field work notes 1979, 1980. Unpublished.
- [38] J. Bastien, "Metaphorical relations between sickness, society, and a land in a Qollahauya ritual". Chapter 2 in *Health in the Andes* edited by Joseph W. Bastien and John M. Donahue. *American Anthropological Association*, Washington. 1981, pp: 19-37
- [39] C. Greenway, "Healing soul loss: the negotiation of identity in Peru". In Joan D. Koss-Chioino, Thomas Leatherman and Christine Greenway *Medical Pluralism in the Andes*. London and New York: Routledge 2003, pp. 92-106
- [40] S. MacCormack, *Religion in the Andes. Vision and Imagination in Early Colonial Peru*. Princeton, New Jersey: Princeton University Press, 1991.
- [41] N. D. Cook, *Born to Die. Disease and New World Conquest, 1492-1650*. Cambridge, New York, Melbourne: Cambridge University Press, 1998.
- [42] L. Newson, *Life and Death in Early Colonial Ecuador*. Norman: University of Oklahoma Press, 1995.
- [43] D. H. Ubelaker, "Patterns of Demographic Change in the Americas". *Human Biology* vol. 63, no. 3. Special Issue on the Biological Anthropology of New World Populations, pp. 361-379, June 1992.
- [44] S. A. Alchon. *Native Society and Disease in Colonial Ecuador*. Cambridge, New York, Melbourne: Cambridge University Press, 1991.
- [45] S. A. Alchon, *A Pest in the Land. New World Epidemics in a Global Perspective*. University of New Mexico Press, Albuquerque, 2003.
- [46] <http://www.unesco.org/new/en/santiago/culture/intangible-heritage/convention-intangible-cultural-heritage/>
- [47] F. Ortega P. Universidad San Francisco de Quito, Ecuador, private communication, March 2017.
- [48] E. B. Tylor, *Primitive Culture*. Volume 1. London: John Murray, 1958, p. 1.
- [49] F. Ortega P., Course modules in Medical Anthropology given at the Universidad San Francisco de Quito, 1996-2011. Unpublished.
- [50] F. Ortega P. *Ciencia Médica Andina. Primera Parte: Las Culturas Médicas Tradicionales*. Ciencia Andina 2- Sabiduría y Rescate. CEDECO- Abya-Yala, Quito, 1990, pp. 127-152.

**Elizabeth Currie** is a Marie Sklodowska-Curie Experienced Researcher and Global Fellow at the Department of Archaeology, and Senior Visiting Research Fellow at the Department of Health Sciences, University of York, United Kingdom Elizabeth has regularly worked across disciplinary and methodological boundaries throughout her rich and varied career which has consisted of two principal trajectories: that of South American archaeology and anthropology, and health sciences and health workforce research. In recent years she developed her lifelong interests in ethnographic and ethnohistorical study of Latin America, during which period she lived and worked with indigenous Andean communities in Ecuador, researching Andean traditional culture and medicine.

**Fernando Ortega** has directed the National Institute of Nutritional and Social Medicine Research (Instituto Nacional de Investigaciones Nutricionales y Médico Sociales) throughout the 1980s and was manager of USAID health programmes for Ecuador. He was also Dean of the School of Public Health. Dr. Ortega has carried out many research programmes and evaluations in Anthropology, Demography, Epidemiology, Public Health, Nutrition, Parasitology, Traditional Medicine and Intercultural Health. Since 1996 he has coordinated health teams throughout Ecuador and was the first President of the Bioethics Committee of the Universidad San Francisco de Quito, Ecuador. Dr Ortega has a keen professional interest in Ancestral and Traditional Knowledge, Genetic Remedies, Health and Environment; Tropical Diseases and Human Parasitology; Environmental Conservation and Climate Change, Global Traditional Medicine and Research Ethics.