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Mexican *Sobadores* in North Carolina: Manual Therapy in a New Settlement Context

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Abstract

Latino immigrants to the New Settlement area of the southeastern United States face structural and cultural obstacles to accessing the conventional health care system, and come from areas with long traditions of medical treatments from healers without professional training or licensure. Little is known about the use of such healers in New Settlement areas. This study focuses on *sobadores*, healers who use manipulative therapy. Goals were to describe *sobadores* practicing in North Carolina, including their background, conditions treated, and their understanding of the pathophysiology of their patients' conditions and how their treatments work. The paper also describes who *sobadores* treat and *sobadores*' understanding of where their treatment fits into patients' pursuit of relief from symptoms. This focused ethnography draws from in-depth, semi-structured interviews conducted with six *sobadores* from Mexico practicing in North Carolina. These *sobadores* appear to meet both structural and cultural needs for healthcare in the immigrant Latino population.

Keywords

USA; Traditional healer; Folk medicine; Healthcare; Manual therapy; Immigrant health

Introduction

The past 20 years has witnessed a rapid increase in the Latino population in the southeastern US, across areas bounded by Arkansas in the west, North Carolina to the east, and the Gulf of Mexico to the south. An area that formerly had few individuals of Hispanic heritage now

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Compliance with Ethical Standards

Research Involving Human Participants/Informed Consent Informed consent was obtained from all individual participants included in the study.

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has states such as North Carolina whose Hispanic population increased from less than 80,000 in 1990 to over 800,000 in 2010 [1, 2]. These new Hispanic residents have moved into the Southeast in greater intensity and into a wider variety of areas (rural, small town, suburban and urban) than in any other area of the US. Termed “New Settlement” areas [1], these states face challenges in changing health care services to accommodate these new residents. The immigrants themselves comprise a vulnerable population, who lack English skills and, while usually employed, many work in low-paying, contingent jobs providing no health insurance [3, 4]. For many, their immigration and documentation status prevents them from accessing insurance through the Affordable Care Act. Many of these immigrants are particularly vulnerable to poor health, as they work in dangerous manual occupations in industries such as agriculture, manufacturing, and hospitality, known for high rates of occupational injuries, and where injury incidence for Hispanic workers exceeds that for other groups [5].

In addition to lacking access to the conventional health care system, these immigrants come from areas, Mexico and Central America, with long traditions of medical treatment provided by healers without professional training or licensure. Most notable are *curanderos* (healers), *hueseros* (bone setters), and *sobadores* (manipulative therapists). While some literature has argued that immigrants choose to use such healers in the US because of lack of access to biomedical care [6], others have noted that immigrants also continue to use such practitioners due to their beliefs about illness and healing and about the appropriateness of folk healers for their health care [7–9]. Kleinman argues that traditional healers respond to patients’ expectations that healing address emotional, spiritual, and social aspects of illness, in addition to physical problems, needs that biomedical practitioners less often satisfy [10]. Traditional healers’ success at treatment is enhanced by the fact that patients and healers have shared explanatory models for illness, that is, understandings of illness causation and treatment [10].

This study focuses on one specific healer, the *sobador*. *Sobadores* are known to practice in Mexico [11, 12] and Central America [13], using manipulative therapy to treat musculoskeletal and gastrointestinal problems. Unlike other types of healers who sometimes remain hidden (e.g., *curanderos* [healers who use folk remedies], spiritualists, *brujos* [witches]), *sobadores* appear to practice openly in Latin America. *Sobadores* in the US are known to advertise and practice openly in traditionally Latino areas. Anecdotal evidence in New Settlement areas in the US indicates that *sobadores* are present in communities, though may not practice as openly as in traditionally Latino areas.

There is little information on the practice of these traditional healers in New Settlement areas. Description of the activities of Latin American *sobadores* among immigrants to the US has largely focused in areas with long Latino traditions. These areas include southern California [6, 8, 9], central and eastern Washington state [7, 14], Arizona [15], and south Texas [12].

All of these studies—except [12]—have used survey methods to examine use of multiple varieties of healers concurrently, rather than focusing on understanding specific types of healers like *sobadores*. Skaer and colleagues used a single question to ask about having

received treatment from *curanderos*, *sobadores*, and spiritualists, and found that 21 % of Mexican–American women acknowledged use of such healers [7]. Lopez queried a sample of Chicano/Mexican–American undergraduate women about ever using *curanderos* (26 %), *sobadores* (39 %), herbalists (20 %) or spiritualists (0 %) [8]. Chavez surveyed Mexican immigrants to San Diego, California, on past use of *curanderos*, spiritualists, witches, and *sobadores*, and found *sobadores* to be the highest at 6 % [9]. Andrews and colleagues, interviewing mothers concerning child health, found about a third used *sobadores*, 8 % *curanderos*, and none used herbalists or spiritualists [14]. Although some of these studies that used survey methods also collected some additional ethnographic and qualitative data, the focus on multiple healer types and the age of some of these studies provides little information with which to understand the use of *sobadores* today in the US *outside* the traditionally Latino areas.

This study draws on data obtained through in-depth, semi-structured interviews conducted with *sobadores* in New Settlement areas of North Carolina. The goal is to describe these *sobadores* practicing in North Carolina, including their background and training, types of treatments they provide, conditions they do and do not treat, and their understanding of the pathophysiology of their patients' conditions and how their treatments work. The paper also describes who *sobadores* treat and their understanding of where *sobador* treatment fits into patients' pursuit of relief from illness symptoms.

Methods

Study Area

This study was conducted as a component of a focused ethnographic study [16] intended to understand how Latino immigrants integrate the use of traditional Mexican *sobadores* with conventional health care in North Carolina. The study location was central North Carolina, including the Winston-Salem and Raleigh urban centers and rural areas west and south of these cities. All aspects of the study were approved by the Wake Forest School of Medicine Institutional Review Board.

Study Design and Recruitment

As part of a focused ethnography, the team undertook identifying and interviewing a group of *sobadores* to understand their practice and epistemology. The focus was on achieving depth of information in a sample that spanned the breadth of practitioners. Therefore, the sample was small, but the qualitative encounter allowed for each participating *sobador* to be queried in detail and analyzed as a coherent case. The study goal was to recruit six *sobadores*, with at least two women and two men. Inclusion criteria for *sobadores* were: (1) age 18 or older; (2) of Mexican descent, (3) self-identified as a *sobador*; and (4) reported treatment of people every week or almost every week during the previous year. Because no list exists of *sobadores* in the study area, the study team partnered with community organizations and community members to identify and recruit *sobadores*. Community partners and community members were asked to suggest individuals in the community known to practice as *sobadores*. These individuals were contacted, the study was explained including general topics to be covered, and they were asked to participate in an open-ended

interview. They were told they would receive \$25 as thanks for completing the interview. In some cases, the initial recruitment included the *sobador* being contacted by a community member, who then introduced the interviewer. Each *sobador* signed a consent form before the interview was conducted.

Data Collection

Sobadores were interviewed by a trained female interviewer who was bilingual and a native Spanish speaker. All chose to be interviewed in Spanish. The interviewer asked that the interview be conducted in a quiet place where the *sobador* could speak freely. In three cases, the interview was conducted in the *sobador's* home. The remaining three interviews were conducted in restaurants, including one in a restaurant owned by the *sobador* respondent. Interviews were audio-recorded.

Interviews were semi-structured and based on an interview guide developed by the investigators based on knowledge of the existing literature on *sobadores*. The interview guide was also based broadly on Kleinman's explanatory model (EM) concept [10]. This holds that patients' EMs for an illness develop through the illness experience, and include the name, symptoms, treatment, pathophysiology, course, and prognosis for an illness. The interview guide for the *sobadores* addressed the following: what term they used for themselves as a healer; how they became a *sobador* (including learning the necessary skills); how they determine the condition(s) that need to be treated; descriptions of the treatments that they provide to patients for each of the conditions treated; beliefs regarding the factors that influence the effectiveness of their treatments; perceived effects of conventional treatment on symptoms presented by patients; and *sobador* compensation. With their descriptions of treatments provided, probes were used to try to elicit the *sobadores'* understanding of the pathophysiology of conditions and how treatments worked to correct the condition. Information regarding frequency of services they provide, patient population, and general characteristics of the provider were also gathered.

Data Analysis

Each interview was transcribed verbatim and translated into English as soon as possible after collection. Transcription and translation was completed by a professional service, and translations were reviewed by the interviewer to ensure that the translation captured the *sobador's* meaning. Initial analysis used ten a priori topics (e.g., learning to be a *sobador*, conditions treated, self-described techniques) to create case studies of each *sobador*. The first author read each transcript multiple times, and wrote summaries of the topics, synthesizing information from different parts of the transcripts. These were reviewed and discussed by the whole team, and the topic summaries were then sorted across case studies to create a variable-based analysis where the variables were some of the ten topics. These were read by the team, and the analyst returned to the text in an iterative fashion to add more detail and to search for commonalities and contrasts across *sobadores*. In particular, the analyst returned to the transcripts to delve deeper into the text to produce descriptions and illustrative quotations of *sobadores'* understanding of the pathophysiology of injuries and their treatments. The team also returned to the original Spanish recordings and Spanish transcripts, when necessary, to compare vocabulary the different *sobadores* used for

conditions and treatments. Pseudonyms are used for the *sobadores* in the presentation of results.

Results

Results of the interviews are summarized in Table 1. The primary interview topics are listed, with the key findings.

Description of the Sample of *Sobadores*

Six *sobadores* were recruited from five different NC counties; three were from largely rural counties, and the remainder from urban counties. Two were women and four were men. The *sobadores* ranged in age from 40 to 85, with a median age of 55. All had been born in Mexico; places of birth ranged from states in central Mexico to the state of Chiapas in the South. One had no formal education, and three had completed elementary school. Two had completed high school; one of those also completed a single year of college. Three did not have other paying jobs, one worked in the construction trades, another in the hospitality industry, and one was a small business owner.

All but one of the practitioners refers to him or herself as *sobandera* or *sobandero*. The sixth considers herself a “woman who gives *sobadas* (massages)”, but does not like to use the term *sobador* for herself in order to insist that she is not a professionally trained or licensed healer. Two of the men are sometimes called *hueseros* by patients, because they occasionally treat fractures. For all six, performing *sobadas* results in their being called *sobador*.

Becoming a *Sobador*

All of the *sobadores* received their initial training from family members who were lay practitioners, including *sobadores*, *hueseros*, and midwives. Often, they remember one particular episode when they were called upon to treat someone in an emergency, and that marked the start of their own practice. For men, participation in sports and the personal experience of injury, treatment, and recovery served as a source of training.

Juan learned from his mother, who used *ventosas* (cupping) to treat people. He later learned massage techniques from the professional masseur for a university soccer team in Mexico. He sought treatment from the masseur for an ankle problem, and observed and asked questions during the treatment. He has been motivated by seeing that people are suffering and his work helps alleviate this suffering.

Rosa learned to be a *sobadora* by watching her mother, who was a midwife. Her aunt and both grandmothers were also midwives. As a child, she used to hide behind bean sacks and watch while her mother was doing treatments. Her godfather was a doctor, so she worked with him and learned about the body. She notes that her knowledge is strong because it runs through both sides of her family.

Maria learned to be a *sobadora* from her parents. Her parents did not take Maria and her siblings to the doctor. Instead, her mother massaged them and gave them remedies. Her

mother performed *sobadas* on children and her father, on adults. Saying she might need this knowledge later in life, her mother would tell her to come and watch as she gave *sobadas*.

Felipe's father was a *huesero*, which Felipe defines as "one who sets fractures." Felipe used to watch him, thinking he would do it the same way himself someday. Felipe's own first experience was at age 17 in Mexico as a *huesero* with a boy who had a broken clavicle. The boy's mother knew Felipe from working with him at church, and she said she did not know where to take the boy. Felipe offered to treat him, and the treatment was successful. This spread by word of mouth and people started bringing patients to him instead of his father. Felipe stresses that being a *sobador* is not "a hobby". Rather, it is something he has to do because he has seen the pain that people suffer and he has to help people.

Xavier's grandmother was a midwife in Guanajuato and started teaching him to give *sobadas* to children when he was 11. She taught him how to know the bones and nerves. She also taught him how to cure children's *mollera* (fontanel) and *empacho* (an illness characterized by digestive symptoms attributed to an undigested bolus of food). Later he went to Mexico City and treated many people at a sports complex. He also learned from watching his uncle, who was a *huesero*. Xavier expresses satisfaction: it makes him happy to be able to help people.

Alberto explains that his grandmother was a *sobandera*. She was blind, and, when he was young, he would take her to homes of people who were ill. He carried a woven mat and arranged it for her to work. She would show him how to move the nerves correctly, but he did not do it himself. He claims that his first treatment as a *sobador* was spontaneous: boys would get hurt playing soccer, and one day when he was 12 years old, he thought he could heal a boy's sprained ankle so he treated the boy and the ankle healed. After that, he asked his father, who was a *sobador*, to teach him more massage techniques. He learned to be a *sobador* because people need the service he can provide.

Conditions Treated and Their Underlying Pathophysiology

The primary complaint treated by the *sobadores* is musculoskeletal pain, usually without swelling. One source of such pain is sprains experienced by the patient, particularly from sports or from falls. A second source of pain is overexertion, particularly during work. "When working and the body is hot, you may grab heavy items and not feel it" (Maria). "Pain can result from bending" (Juan). "You don't sleep well and then work to the point of excessive fatigue" (Felipe). A third source of pain is from keeping the body in an awkward posture without moving for extended periods. "People may come home tired and pass out immediately without realizing they are in a bad posture" (Maria). "Person may stay in the same position for too long, standing or sitting" (Alberto).

Three types of pathophysiology are described for musculoskeletal pain. The first is *el aire* (air), a condition that is common in the case of overexertion, sleeping poorly, back pain or *dolores de cintura* (waist pain). Juan, Felipe, and Maria all describe similar pathways leading to the development of *el aire*. Juan describes *el aire* as a pain that cannot be relieved with any normal treatment, and it must be removed (*se le quita el aire*). *El aire* results from air getting into the muscle tissues from bending or stretching, particularly around the waist.

A second source of pain is twisting of nerves, muscles, or tendons. Maria reports that you can feel the nerves that are tangled; they feel like little balls. Over multiple *sobadas*, the tangled nerves become more evident. Other *sobadores* refer to muscles or tendons, rather than nerves, becoming twisted or overlapping. Alberto describes the massage softening muscles so they relax and slip back into place.

A third source of pain is deviations in the joints as bones and muscles become misaligned. Alberto reports that one would say in Mexico “*se abre la cadera*”, that the hip joints open. Felipe talks about how bones in the spinal column can get out of place. Xavier notes that the hips can become misaligned, so that the legs appear to be different lengths and one leg may turn out to the side.

Two conditions commonly considered as folk or indigenously-defined illnesses were treated by several of the *sobadores*. *Empacho* is interpreted as a gastrointestinal disorder in which foods eaten by a child become stuck in the stomach or intestine. Alberto describes his use of a soft massage on the child’s stomach, in clockwise circles, followed by giving the child oil or milk of magnesium, which he believes helps them liberate air that has accumulated in the body. Xavier states that two or three massage sessions are sometimes needed; he follows massage with having the child drink a little olive oil, followed by rice water. Felipe also treats *mollera caida*, sunken or fallen fontanelle. He reports that this soft spot on the baby’s head sometimes sinks when they are shaken, and he tries to correct it.

Much of Rosa’s practice has always been treating women. She claims that she can do *sobadas* that will prevent miscarriage. She has performed *sobadas* for pregnant women, and she offers *sobadas* for women who are trying to get pregnant.

Conditions Not Treated

The most common conditions not treated by the *sobadores* in North Carolina are broken bones. Juan, Xavier, and Alberto say that there is too much risk that the bone will be sharp and cut a nerve, muscle, or vein. Fractures may heal crooked, which is a risk *sobadores* do not want to take, as “those kinds of risks can get you into trouble” (Xavier). *Sobadores* do sometimes immobilize such fractures and send patients to the hospital. Conditions with swelling or inflammation and intense internal pain (e.g., headaches) are also not treated.

Techniques of the *Sobada*

Two primary treatments of musculoskeletal pain are described by the *sobadores*: all use massage in an iterative process of diagnosis and treatment to realign body structures (tendons, nerves, bones, muscles). *Ventosas* or heat are described by some of the *sobadores* for removing air from the tissues for waist and back pain.

The *sobadores* explain that the massage treatments are used to untangle tendons, to reposition them “according to how they are supposed to be in the body, in accordance to the lineal form of the bone” (Juan). He uses the analogy of a twisted cord. “You know, you have a cord with three or four strings. Then, if you pull one from over there, it will twist from over there. That’s the problem with tendons.” He starts his treatment at the proximal point, where the tendon is believed to begin at the midline of the body. If someone has a hurt

finger, he will begin the *soba* at the neck or shoulder and move down the arm toward the finger “to start fixing everything along the way, everything is in place—that’s the trick.” Juan claims that he identifies *desviaciones de tendones* (curvature of tendons) by feel: “they feel out of place.” This treatment takes time, sometimes as long as 90 min for backs and other difficult cases, as he straightens and realigns the tendons.

Others describe straightening nerves tracing the path of nerves from proximal to distal using massage. “You have to know where the nerve begins,” Rosa says, and indicates that the treatment takes time to make the necessary adjustments to the nerve. Maria notes that this approach helps you understand the points where you should massage. Sometimes she feels that the nerves are tangled or they feel like little balls. As you massage, they fall back into place, sometimes with a sudden crack. Having the patient tell her where it hurts is not really useful: “Sometimes people say ‘it hurts here or it was here.’” But it is not the location of the pain that is important, but where the nerves originate for the different pain types. For back pain, the treatment takes longer than if it is just a foot or hand because she has to identify where the nerves are that are causing the pain and massage more in that area.

The massage is also seen as realigning bones. Felipe uses massage to put bones, particularly the bones of the spine, back in place. He uses his hands to feel the individual bones and assess their alignment. Then he begins to massage the bones, and the back “cracks”, providing immediate relief to the patient. Misalignment of the hip bones is seen as a cause of a number of types of pain (back pain, leg pain) for which patients see *sobadores* to seek relief. Xavier examines the relative length of the legs while the person is lying down and compares the orientation of the feet. If he sees asymmetry, he massages the back and hip to realign the hip. As the others who realign nerves and tendons, he treats pain caused by misaligned bones by working more proximally—massaging the back and arm for hand pain, for example.

Massage is also used to straighten twisted muscles. Alberto, for example, believes that the muscles and tendons often overlap, and massage can make them relax and go back into place. In his treatment, he is trying to rearrange the muscles around the bones. He focuses on either the proximal or distal end of the muscle to relax it, as the middle may be swollen and massage can cause the swelling to spread to the ends of the muscle. As the best educated of the *sobadores* interviewed, Alberto had studied anatomy in school and learned about healing traditions such as reflexology from the internet, and his descriptions of treatments reflect this. He specifically discusses reflexology as effective in addressing issues with the digestive organs. Alberto purports that massage in one area can be reflected in another part of the body; reflexology is based on a system of zones in the body being reflected in specific areas of the feet where pressure can be applied and result in change in a corresponding zone of the body.

Ventosas are used for treating *el aire* in conjunction with massage by three of the *sobadores*. Rosa mentions using ventosas on the back, as does Juan. He describes placing the *ventosas* on the back to release air that gets into the muscles at the waist. Small candles are lit and placed over the affected area; a small glass cup is placed over the candle. “When the flame goes out, it suctions the air; it extracts the air from the pores—but that’s bad air” (Juan). The

sobador must be careful to move his hand away when removing the cup, lest the bad air enter the *sobador*. Juan describes the use of *ventosas* as effective in curing the pain from walking around with air in the tissues, but that “it is nothing scientific, nothing complicated. It is simple, common home medicine, traditional.” Felipe seems to practice a variant of this technique. He does not use cups, but heats his hands before massage with the stove (in Mexico they would warm hands directly over embers from a wood fire). The warm hands then warm the patient to open the pores to get oxygen in and “to remove all the bad stuff they have internally.”

Sobada treatment sessions appear to vary from relatively quick treatments, such as those given by Xavier to workers who come to him with an injury at his workplace, to longer ones given by *sobadores* in their home. Juan describes his treatments for the most difficult cases as lasting from 60 to 90 min. Maria describes treatments for pain as lasting 40 to 60 min, compared to only 30 for a massage designed to provide stress relief and relaxation.

The *sobadores* describe use of ointments during the massage that is both functional and therapeutic. Maria uses simple oils or ointments with no medicinal value and Juan an ointment that he buys at a local pharmacy, simply to help the hands to move freely and not hurt the patient’s skin. Xavier has used automotive oil when treating coworkers at the worksite. Therapeutic oils include over-the-counter “penetrating” oils that warm the massage site, as used by Juan. Felipe prepares a mixture of cooking oil with camphor, which he uses to get rid of *el aire*, as well as cooking oil with herbs rue or basil, which can lessen inflammation. Maria uses a preparation called “hot herb”, an ointment with herbs that she gets from Mexico, to reduce muscle inflammation. Xavier brings oils and six different ointments from Mexico. One of them, methyl salicylate with *aceite de arrayan*, creates heat and is only applied to lessen inflammation when the patient feels pain. The ointments are hard to obtain in the US, and include Ortolan, a veterinary preparation with camphor and menthol. Alberto reports using Iodex, an ayurvedic balm that includes methyl salicylate, to relax the muscles after the massage.

After the treatment some *sobadores* place bandages on the patient to keep air out of the pores that have been opened. Felipe recommends that his patients rest in a chair or on the floor, but not on a mattress, as that could open the spine to air. Some recommend that the patients do not shower or bathe, because the treatment has “warmed” them.

Patients and Payments

Patients find these *sobadores* by word of mouth; none of the *sobadores* advertise. A reputation for successful treatment spreads, often among a network of the patient (e.g., relatives, co-workers, sports team members). Xavier, for example, successfully treated a nurse, and now other nurses come to him. He has treated workers, and now their bosses (including non-Latino Americans) bring other workers, giving him a practice that is largely composed of persons hurt at work. Felipe treats workers and athletes, particularly members of a local soccer league. Several of the *sobadores* reported that they are wary of patients whom they do not know. They stress that they are not professionals; if new patients ask about training or certification they advise them to seek treatment elsewhere.

All these *sobadores* report treating children and adults. They tailor the rigor of the massage to the age of the patient, being gentler with children and older adults. While men treat both genders, the two women treat primarily women. Maria reports that it takes more strength to treat men. She also wants “to be respectful” of her husband, “because sometimes men misinterpret what is going on” during the massage.

Sobadores accept patients at different stages of the illness process. Some patients seek *sobador* treatment directly after the onset of a problem. For example, Alberto treats athletes who have sprained their ankles and come to him after the injury. Other patients come to the *sobador* after treatment by conventional health care providers has failed to produce satisfactory results. Maria reports treating a woman who worked in a poultry processing plant where the doctor had prescribed pills for her wrist pain, but these failed to end the pain. Through massaging her arm (“it was like a nerve I was feeling that was a little bump”), Maria was able to provide relief. Felipe reports athletes come to him, saying that, while they have a team doctor, they have not felt “satisfaction” from his treatments. Xavier reports treating a friend’s child for *empacho* with massage after the child had been hospitalized and given intravenous treatments, but was still ill and not eating. Other patients come to *sobadores* when they question a treatment prescribed by doctors. Xavier describes the case of a nurse who injured her back trying to lift a patient who had fallen out of bed. She had seen a doctor who said she must have surgery on discs in her back. With three massage treatments, she was able to go back to work and avoid the surgery.

Only one *sobador* reported a set fee, \$30 for a course of treatment, which usually consists of three visits. Another reported that he always charges “a reasonable amount that is not over \$50... because (the massage) takes a toll on my hands.” Others leave it up to the patient to pay, insisting that they do not work as a *sobador* for the money. “People need the service, and that’s the reason I learned to do it” (Alberto). Some do not pay, or promise to pay later but do not. However, most patients pay something, and the amounts vary from just \$1 to \$100.

Discussion

The six *sobadores* interviewed here were diverse in ages, educational background, and region of Mexico from which they migrated to the US. Despite this diversity, the *sobadores* related similar experiences in becoming *sobadores* and similar explanations for their practice. All became *sobadores* in Mexico as children. They were recruited to be *sobadores* and initially trained by relatives, usually parents, who were themselves some type of healer. Following a period of observation of the healer’s technique, several *sobadores* experienced a seminal event where he or she was called upon to act to heal an individual. These events were used as part of a personal narrative to establish the *sobador*’s authenticity and to explain the *sobador*’s calling to help people in pain. The idea that being a *sobador* is a calling and not a career choice is reinforced by the insistence of most that they do not do treat patients for the money.

These *sobadores* explained the pathophysiology of their patients’ pain and how their massage techniques corrected this by focusing on lines of different tissue types (nerves,

tendons, or muscles) that had become twisted, no longer functioned properly, and therefore caused pain. The physical aspects seemed more important than the actual type of tissue: the word *cuerdas* (cords) was used to describe the physical properties of the affected tissues. All were cord-like structures originating at a central point of the body and then extending out into the extremities. The act of the massage straightened these cords and relieved the pain.

This pathophysiology is similar to that reported in other studies of *sobadores*. Hinojosa profiles *sobadores* in South Texas who also view the body as a network of *cuerdas* (ropes) [12]. He reports that these course up inside and outside of the extremities, meeting at the torso at points called *ancordias*, and then extending up to the head. One of Hinojosa's informants explains that calcium accumulates in the *cuerdas*, becoming palpable knots or balls, which then block blood flow; another of his informants claims the *cuerdas* facilitate nutrient flow, so they must be straightened and unblocked by massage after injury. Another of Hinojosa's informants refers to these as *bolitas* that form and must then be untangled by massage.

The idea of an internal network in the body is common to multiple healing traditions beyond *sobadores* [17]. Acupuncture, for example, bases its treatment on Principal Meridians, which course through the body both superficially in muscles and tendons and deep to organs [18]. Rolfing and other forms of bodywork describe myofascial meridians, anatomical lines that transmit movement and strain through the body [19], and these are thought to correspond with acupuncture channels [20].

The somatic availability of information through the *sobador's* hands to guide treatment shapes the patient-healer encounter. *Sobadores* diagnose the sources of pain with minimal reliance on a patient history. Some of the *sobadores* say that they let the patient talk about the injury event because this relaxes them, but, beyond a general description of where the pain is felt, none of this appears to be considered necessary. This is similar to reports from South Texas [12], Mexico [11], and Guatemala [21]. Hinojosa reported that South Texas *sobadores* gained information from their tactile senses, understanding the patient's conditions directly with their hands [12]. Like the *sobadores* in the current study, the hands were used to feel superficial contours—joints that appear to be out of line, swollen muscles—as well as to probe more deeply to obtain more information on possible twisting tendons or nerves. As in the present study, Anderson notes that a light stroking massage along the length of a muscle proceeded to a deeper massage that identified nodules [11].

The idea that information and knowledge are embodied and available to healers through touch is central to the work of *sobadores*, as well as other manipulative therapy practitioners. The traditional Filipino healer (*hilot*) diagnoses and treats patients in an iterative process of exploration and manipulation with the hands [22]. Both O'Malley and Anderson have noted the similarity of the techniques to chiropractic, with the inverted importance of manual diagnosis over patient history, compared to biomedicine [11, 22]. A component of this reliance on the healers' hands for information is the belief that patients' understanding of what is wrong adds little information. While patients focus on the site of pain, this is not necessarily the site where tendons or nerves are tangled.

The *sobadores* in the present study noted that they treated the condition *el aire*, which was manifest as waist or lower back pain. Simpson reported this for *sobadores* in Costa Rica [13], and Hinojosa in South Texas [12]. While the *sobadores* in the present study cited specific means by which air gets into the body (twisting, awkward posture awake and asleep), they did not connect it to temperature (e.g., cold drafts), as did Simpson and Hinojosa [12, 13].

Empacho, treated by two *sobadores* in the present study, resembles *pega*, a condition whose treatment was described by Simpson in Costa Rica [13]. Both differ from the musculoskeletal problems that form the basis of most *sobador* treatment, but use massage as treatment.

These *sobadores* see value in biomedicine for some conditions. Broken bones, in particular, most consider beyond the scope of their care. This contrasts with practice in Mexico, where *sobadores* are considered by some to be bonesetters [11, 21]. Indeed, Felipe reported that his first *sobador* experience in Mexico was setting a broken clavicle. The *sobadores* in the present study consider setting bones to be “dangerous”, and describe the dangers of dislocated fractures cutting blood vessels or nerves. However, their narratives imply their aversion to risk extends to other dangers in the United States, perhaps being reported to some authority for practicing medicine with no license. Maria, for example, treats only persons she knows. She and others advise prospective patients who inquire about training or certification to go elsewhere for treatment.

Our results suggest that *sobadores* in New Settlement communities in North Carolina were healers in Mexico and have brought their techniques with them. They appear to be sought out by sufficient numbers of potential patients to meet or even exceed their desire to care for them. Future research should look for changes in some current *sobador* practices, such as not advertising and not stating a specific price for services. The current practices may reflect the sufficient number of patients; fear related to documentation status and practicing without a license may also play roles.

Structural factors contribute to the success of *sobadores* in an environment where biomedicine is nominally available. First, biomedicine may be expensive to their patients, particularly because many probably lack medical insurance, suffer occupational vulnerability resulting in uncertain income, and, as immigrants without documentation, do not qualify for coverage under the Affordable Care Act [23–25]. Secondly, a large number of the injuries *sobadores* treat appear to be the result of occupational injuries. Many Latino immigrants work for small employers who do not provide workers compensation insurance or who do not allow workers to use it. Farmers in North Carolina with less than 10 employees are not required to provide this insurance to farmworkers [26, 27]. Employers in the construction industry have been reported to fire employees who claim to be injured on the job or to pay for their treatments out of pocket rather than report the injuries as work-related [28]. Workers in poultry processing are punished for reporting injuries and some of the most common injuries (e.g., carpal tunnel syndrome, back pain) are frequently denied as occupational by employers [29]. The report from one *sobador* in the present study that a non-Latino employer brings him injured workers suggests that this employer is trying to

avoid workers compensation and the Occupational Safety and Health Administration (OSHA) reporting system.

Beyond such structural factors, *sobadores* likely provide more culturally-appropriate care to immigrants than biomedical providers. Patients' reports of pain are validated by the *sobador's* treatment [12]. In contrast, biomedical providers' use of tests and technology calls into question patient reports, and can result in the practitioner declaring that nothing is wrong. *Sobadores* and their Latino patients are more likely to share components of their explanatory model and therefore expectations of diagnosis and treatment [10]. Both groups recognize culture bound syndromes such as *empacho* and *el aire* as legitimate conditions that must be treated. They have shared expectations for how and where such illnesses should be treated.

This study should be interpreted in light of its limitations. It focused on a small group of *sobadores* who participated in a single interview. Had a greater number of *sobadores* been interviewed, or if multiple interviews had been conducted with each, additional insights may have been obtained into the practice of these healers in the US. Nonetheless, the *sobadores* interviewed here show striking similarities in their philosophy of healing, treatment procedures, and personal history to those interviewed or observed by other researchers in Mexico and Central America.

Conclusions

The dramatic increase in the number of Latino immigrants in New Settlement areas has brought *sobadores*, indigenous medical care practitioners. While *sobadores* have been described in areas of the US bordering on Mexico, such practitioners have not been described elsewhere in the US. Additional research may reveal continuity or change in *sobador* practice with longer residence of both *sobadores* and with patients in New Settlement areas.

Sobadores share aspects of their pathophysiology and treatment techniques with other healing systems. Some, such as acupuncture and other massage traditions, have professional certification and have been integrated to varying degrees with biomedicine in the US. Research on the *sobador* tradition over time in the New Settlement areas should examine whether *sobadores* continue or are, perhaps, replaced by existing healing professions.

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Table 1

Summary of interview topics and key findings from in-depth interviews

Interview topic	Findings
Becoming a <i>sobador</i>	Initial training from family members Recall a seminal event where they were called to heal
Conditions treated	Musculoskeletal pain from sprains, overexertion and awkward posture Folk illnesses <i>empacho</i> and <i>mollera caida</i> Infertility and miscarriage prevention
Pathophysiology of pain	<i>El aire</i> Twisting of nerves, muscles, and tendons (<i>cordas</i>) Deviations in joints as bones and muscles are misaligned
Techniques of the <i>sobada</i>	Diagnosis relies on embodied knowledge accessed through massage Massage used to realign joints and <i>cordas</i> Cupping (<i>ventosas</i>) used to remove air from tissues
Patients	Word-of-mouth recruitment Both children and adults Some specialization (e.g., only women, primarily occupational injuries, athletes)
Payments	A calling, not for the money: “people need the service” Set fees are rare Amounts vary from \$1 to \$100