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The contribution of the ethnographic method to the register of epidemiological data. Quechua aborigine sociocultural epidemiology of Potosí city

La contribución del método etnográfico al registro del dato epidemiológico. Epidemiología sociocultural indígena quechua de la ciudad de Potosí

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ABSTRACT This article intends to show the usefulness of the ethnographic method for epidemiological registers. Through the example of the Bolivian city of Potosí, we show how the epidemiological data which served as a basis for the implementation of health policies and programs did not represent reality. We highlight the limits of the survey technique and registers supported exclusively by quantitative methodology. Through a sociocultural epidemiological register, we tap into the knowledge held by representatives from each of the different health systems recognized by the inhabitants of the city, in order to detect the most important problems in public health in Potosí.

KEY WORDS Cultural Anthropology; Indigenous Population; Public Health Policy; Bolivia.

RESUMEN Este artículo pretende dar a conocer la utilidad del método etnográfico para los registros epidemiológicos. A través del ejemplo de la ciudad boliviana de Potosí, se muestra cómo los datos epidemiológicos que servían de base para la implementación de políticas y programas sanitarios, no representaban la realidad. Se destacan los límites de la técnica de encuesta, y de los registros sustentados exclusivamente con metodología cuantitativa. A partir de un registro de epidemiología sociocultural se rescatan los saberes de todos los representantes de los diversos sistemas de atención a la salud que son reconocidos por los habitantes de la ciudad, con el objetivo de detectar las problemáticas de salud pública más importantes de Potosí.

PALABRAS CLAVES Antropología Cultural; Población Indígena; Políticas Públicas de Salud; Bolivia.

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WHAT ARE THE ADVANTAGES OF USING THE ETHNOGRAPHIC METHOD IN EPIDEMIOLOGY?

In this article, we intend to show how the complexity of a public health care system cannot be addressed exclusively through numerical data. In order to do so, we take the epidemiological data of a Bolivian city as an example. Herewith, we intend to show how economic, political, ideological and sociocultural aspects need to be taken into account when it comes to detecting and analyzing the most commonly occurring pathologies and problems in a specific population. In certain regions and countries the epidemiological data do not reflect the real causes of morbimortality in different populations,[a] because the epidemiological record is compiled exclusively at public healthcare centers and on the basis of biomedical diseases.

The epidemiological data is very important as it represents the first step and, in many cases, the only step taken into account when it comes to implementing future health programs and policies designed to help improve morbimortality rates. One of the factors that leads to less efficient health programs is, precisely, that they are not adequate for the reality in which they are being implemented.

There are multiple factors that have an impact on implementation; and, as we shall see later, one of the greatest problems is the way data are recorded.

In order to understand all the factors that have an impact on the causes of morbimortality we need to take into account not only the epidemiological data compiled by the health statistical services, but also the causes of morbimortality according to the different health systems and, obviously, the population in general.[b] This knowledge includes a diversity of pathologies that add to those already recognized by the World Health Organization (WHO). It is essential that these diseases and illnesses be included in the register, as they are commonly recognized by the health care personnel who know and use alternative systems to treat them.

Throughout this article, we intend to show the importance of the ethnographic method for the collection of epidemiological data and the importance of living with the different social groups being studied in order to obtain "real" data for the statistical records. In addition, we intend to show the importance of using a qualitative methodology, which involves collecting data through ethnography, for making diagnoses of health status. In order to do so, we have to first define what ethnography means in the strict sense.

ETHNOGRAPHY AS A FIRST STEP TOWARDS AN EFFICIENT RECORD

The ethnographic method implies a specific way of approaching reality, and its aim is to obtain in-depth information about the desired topic. According to Hammersley and Atkinson:

> It involves the ethnographer participating [...] in people's daily lives for an extended period of time, watching what happens, listening to what is said, asking questions - in fact, gathering whatever data are available to throw light on the issues that are the focus of the research. [...] Ethnography is the most basic form of social research.[2 p.15]

This involves, on the one hand, a prolonged period of living with the social group being researched and, on the other hand, a relationship with the study subjects which goes beyond the relationship between the observer and the observed, to become a relationship between observation and transformation.[3] On the basis of this interaction between the observer and the observed, we can see how the researcher's values have an impact on the research study, therefore "the findings are mediated by the values."[4 p.127]

When time shared with the group is prolonged, other factors appear that condition the data being recorded. Here, unlike the survey technique, where the focus is on the

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information the subjects provide rather than the subjects themselves, the data is not impersonal. In the information collected using the ethnographic method, in contrast to that collected via the qualitative method, the subjects – and not the data obtained from reality – become a key element. Therefore, the data built from the fluctuating dynamics of the daily life in which the ethnographer is inserted, are richer and more complex, represent reality more rigorously and, hence, are more reliable than the data de-contextualized from their original framework.

However, sharing an extended period of time with a social group does not necessarily involve the implementation of the participant observation technique. We must distinguish between ethnography, or the ethnographic method, and the techniques applied in it. Despite their differences, the observation and participant observation techniques are frequently confused with ethnography.

The participant observation technique can be defined as a technique where the researcher's body becomes an important element in the research study. In other words, one can share life with laundresses and yet never do laundry. When recording that doing laundry can cause a disease, we can do so through the observation technique or through an interview. However, if we do laundry, we may feel, in our body, the pain suffered by somebody who keeps their hands in cold water for a long time. In this case, the recorded data have a different value from that achieved through the observation of how and when other people perform an action. It is not only important to perceive the data through the body of the researcher, but also to verify how the relationship with the subjects or the study group changes radically when we perform the same activity as the "others." In this respect, we will give another example to help clarify the scope of the participant observation technique. While I was doing fieldwork on the quality of health care in public hospitals in the Bolivian Plateau – years after conducting this research study – I had to be hospitalized to undergo surgery. Due to this hospitalization, and from the moment my body became involved, the data which I had previously collected through the interview and observation techniques gained a radically different meaning when it came to understanding the quality of health care in public hospitals in Bolivia.

Consequently, throughout this article, when referring to the use of the participant observation technique in all medical systems, we refer to having had an active role as a patient, as a helper in daily housekeeping and participant in ritual ceremonies, among other activities.

The participant observation technique does not necessarily involve spending a long time in the field, as it can be done in a short period of time. However, it does involve the researcher's body in action, understood as "the feeling body" or "the body becoming sensitive" providing a perception level of the data that goes far beyond the data that can be collected using the qualitative methodology techniques mentioned previously.

In any case, it should be made clear that research can be conducted through the ethnographic method, by using techniques other than participant observation; using, for example, the observation technique, an interview, a focus group or life history.

In short, the ethnographic method is characterized by the knowledge of the "other" based on a prolonged stay with the study group and a commitment established with the participants in this study group within the framework of ethics and human relations. One of the principal differences at a methodological level is that in this type of research study, researchers "consider themselves the instrument of observation par excellence."[3 p.31] We agree with the premise that:

> Knowledge consists of constructions which have relative consensus [...] among competent people [...] to interpret the substance of such constructions. [4 p.134] [Own translation]

When the aim of our research is to understand and reconstruct the subjects' constructions, and these will undoubtedly include the

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researcher, we draw from the premise that the data are always socially constructed.

Therefore, when we refer to ethnography we trace back to the beginnings of the discipline of anthropology, when most anthropologists lived for prolonged periods of time with the groups they were studying. This has always been a characteristic of the anthropological endeavor and is what has made anthropologists different from the rest of professionals in the social sciences. Due to multiple factors – the most important being, undoubtedly, the availability of work – ethnography is increasingly becoming a sum of different qualitative methodology techniques that are being used in such reduced periods of time that they should not be named ethnographies.[5](c)

Living with the study group helps obtain, not only better quality in data (quality understood as reliability in the data recorded), but also helps give the anthropologist an in-depth understanding of why events occur the way they do. While the epidemiologist warns about a specific reality such as cholera or suicide, the anthropologist gives the reason why something is happening in a specific group.[6,7]

In short, the ethnographic method allows us to become aware of the connections between representations and practices. Given that one thing is what people say they do(d) and another thing is what they actually do. The observation of practices becomes the best way to gather data and the participant observation technique, where the anthropologist participates in the daily life of the group they wish to study, is undoubtedly the most reliable technique for recording data.

Knowing and analyzing the connection between representations and social practices is the key element for designing efficient public health care programs and policies that lead to changes for the groups involved. In doing so, each cultural and social group's approach to health, disease and death must be respected.

In order to clearly show the arguments for the usefulness of incorporating the ethnographic method into the epidemiological records, we will use as an example the city of Potosí, Bolivia, inhabited mostly by Quechua indigenous peoples.

ETHNIC AND RELIGIOUS IDENTITY: IMPACT ON DATA COLLECTION

One of the key elements to understanding how the data are recorded in a determined context is by analyzing the relationship between the epidemiological data, the health care personnel and the population. Drawing upon the differences and heterogeneities rather than upon homogeneity implies considering three categories: ethnic group, identity and religion. The most appropriate way to incorporate these categories into the data recording is to implement an ethnography which can reflect these aspects.

In the case of the Bolivian Plateau, we find that most of the health care personnel are of indigenous origin: Quechua or Aymará. However, the majority of the health care personnel(e) that work in the cities define themselves as mestizo. Whether or not they speak the Aymará or Quechua language or practice their culture, they define themselves as mestizo because they live in the city; therefore they establish the equivalence between city and mestizo. In other words, they change their identity to mestizo, which is less stigmatized than the indigenous identity, and is a term which indicates a higher social status. Frequently health personnel who define themselves as mestizo, but who are actually of indigenous origin, tend to show greater discrimination towards the rural indigenous population, definitively, the identity from which they want to separate themselves. They often deny their own culture which in turn causes them to mistreat patients of indigenous origin. In most cases, they deny the existence of certain folk illnesses and do not recognize certain traditional medicine practices. This fact is influenced by the previous and subsequent identity of the social subject, and also by the medical training they have received as it is usually stricter and more discriminatory in some Latin American countries

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than in Central American ones. As one doctor describes the medical training in Bolivia, *"the training we receive is like the military service and they make us deny everything our grandparents have always done."* Undoubtedly, this has an impact on how strictly doctors behave in their professional practice.

This ethnic aspect influences the way of understanding the "other," diagnosing and treating the patient. Each individual is influenced by their identity and the religion they profess. As a hypothesis, we state that these aspects have an impact on data registration. A health care professional's religion has an influence on the diagnosis and on the way of understanding the cause of the disease or illness. Medicine is not immune to the ideological influences of the individuals who practice it.

THE ETHNOGRAPHIC METHOD

The decision to use the ethnographic method for carrying out a health status diagnosis of a population, which involves knowing the most important public health problems of a specific population, is based on the theoretical and methodological conviction that this method is important for data collection.

The example we use to support this argument is the city of Potosí and is centered on a research study conducted between 2004 and 2005.[8] The study consisted of making a health diagnosis of the population aimed at identifying the most relevant public health problems so as to establish health programs and policies consistent with reality. In order to do so, an ethno-epidemiological record was compiled and, simultaneously, the flaws in the public health system's data recording were analyzed. In analyzing the material, we concluded that the statistical data are narrow and limited if they are not coupled with a qualitative methodology that can account for the diseases and illnesses that appear in a given context.

The use of the ethnographic method in this research study contributed to revealing a reality that was not reflected in the epidemiological data for Bolivia. Simultaneously, it allowed us to corroborate that the causes of the most important public health problems were related to the political, socioeconomic and cultural situation, and not exclusively health aspects.

The research started in the city of Potosí at the beginning of 2004 as part of a project run by the Fondazione Angello Celli per una Culture della Salute, financed by the European Union (Programa @lis). The objective of the project was to train primary health care personnel through distance learning. The main objective of the research study was to ascertain the needs of health care personnel by getting to know their reality and the needs of the community they worked with, in order to improve their training at the primary health care centers.

By using the ethnographic method we sought to reveal the most important health problems in the city of Potosí through the practices and representations of health care personnel in the primary care centers, as well as the representations and practices of traditional healers, evangelical pastors and Quechua mothers. In other words, representatives from the different health care systems. In order to do so, it was essential to live in the city with the different actors to obtain the required data and to understand the dynamics that lead this city to have the lowest life expectancy in the country with an average of 57 years.[9] I started by living in the city center, in a house with a central courtyard (similar to a multiple family unit) with various Quechua families living in different rooms.

Living with the community helped me observe the city markets and their inadequate sanitary conditions. I observed how perishable foods such as meat, fruit and vegetables are not handled, chilled or stored properly. These products are kept on the floor and some of them are sold well past their sell-by dates. When poultry is spoiled, it is washed with bleach to hide the bad smell and color, and some products that need to be refrigerated, such as dairy products or cakes with frosting, are kept long hours in the street

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under the intense sun of the Bolivian Plateau. All these products are regularly consumed by the population.

The city markets supply cheap food and are therefore regularly frequented by the population. After eating there, like the majority of the local population, I started to suffer intestinal infections. Diarrhea is one of the most commonly reported diseases among adults and children in Potosí and it is a leading cause of death in children.

Potosí is a mining city which means that it suffers from both environmental and water pollution. There is no potable water in Potosí and in many homes water is neither boiled nor disinfected with bleach. This means that inhabitants suffer repeatedly with serious intestinal problems.

Our first contact with the public health services took place during a visit to the public hospital and the primary care centers in the city. In 2002, Potosí had a population of 145,057 inhabitants.[10] Upon visiting the health centers, the project was presented to the health care personnel. At the beginning, we conducted group interviews with the health care teams in each center.[g] The aim of these interviews was to find out the most frequent reasons for consultation in health centers and the most frequent causes of disease and death in the neighborhoods, whether or not these causes were recorded in the epidemiological data. Thereafter, we started noticing that the causes of disease and death entered in the forms sent to the Departmental Health Service (SEDES) [*Servicio Departamental de Salud*] and the National Health Information System (SNIS) [*Sistema Nacional de Información en Salud*] were different to those known to the health care personnel.

While we were conducting our fieldwork we also reviewed and analyzed the epidemiological data at a national and departmental level, and for the city of Potosí. This helped us corroborate that the only causes of death that reflected reality were those linked to diseases in children.

After two months of visiting the health centers and working with the teams –observing in the doctor's office, visiting homes in different neighborhoods with social workers, and sharing daily life with the health personnel (attending weddings, baptisms, burials, among others) – five focus groups were organized[h] with all the professionals who worked at the centers (a focus group with nurses, another with social workers, another with doctors, another with Community Health Representatives and another with nursing assistants). Each focus group included between 14 to 18 professionals. Almost all of the health care personnel who worked in the public primary care centers in the city participated. We used this technique so that we could focus on the problems that affected the health care personnel in their professional activities and allow them to propose which training courses they needed to improve their working conditions and their relationship with the community.

As it was not possible to carry out an in-depth observation of either all the primary care centers or all the population, we selected a neighborhood that was not located at the foothill of the Cerro Rico, where all previous research studies had been conducted. We selected a neighborhood in the center of the city using the following criteria; the health center had to be located in the neighborhood, cover a population of 10,000 inhabitants and treat both the rural and urban population, as there is great mobility from the rural areas to the city. A significant proportion of the population comes from the rural communities for seasonal work at the city's mines or to trade certain products, returning to the rural area for the harvest season. This choice was also made because most of the inhabitants were miners and merchants, the two most common professions.

Selecting the neighborhood[i] involved starting with a month's observation in the selected health center, sharing daily life in the center, observing the relationship between doctor/patient in the consulting room, with the nurse, the nursing assistant, the social worker, in other words, with each person that worked at the center. In the waiting room, we also talked to patients, most of whom were women

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and children, who had come to the health post seeking medical attention. We selected ten of these women, based on the criteria that they were Quechua indigenous, of both rural and urban origin. They were also selected according to their religion, so we selected women from Andean, Catholic and Evangelical religions, the three most important religions in the city (three Evangelists, four Catholics and three from the Andean religion).[j]

These selection criteria were based on previous research studies conducted in other cultures,[12,13] where it was proven that religion is important when it comes to the social subject attaching meaning to diagnosis, disease, care for the medical condition and the meaning of death.

We interviewed[k] each of the selected women and visited their homes repeatedly. This approach allowed us to determine and observe some of the therapeutic schedules followed by these families.[l] The women helped us make contact with the most popular traditional healers in the neighborhood and the evangelical pastors. We worked in-depth with two of the most frequented pastors for healing sessions and prevention of diseases and illnesses, so we were able to observe how the sick were treated by these pastors, not only at church but also in their homes. In addition, we observed that people visited the health posts almost exclusively for those illnesses that were covered by the Universal Maternal and Infant Scheme (SUMI) [*Seguro Universal Materno Infantil*].

While subjects attended the health services, they simultaneously consulted other health care systems: religious, traditional, self-care.[m] The decision to combine certain systems depended on whether the family belonged to the Evangelical, Catholic or Andean religion. The schedules and the way of understanding the disease and its causes varied despite the fact that all of the families belonged to the same ethnic group: the Quechua. Therefore, it was possible to observe how belonging to an ethnic group could not explain by itself the most complex realities that govern the social subjects' decision-making when it came to deciding which health system to use.

Simultaneously, we carried out observations in all the medical systems identified as places where families went to for consultation and care. We paid repeated visits to evangelical churches of different denominations,[n] and were able to observe the healing sessions and the evangelization services; we worked similarly in the consulting room of the traditional healers, selecting the two most popular among them. In the case of Don Felipe,[o] we were able to observe his healing sessions more frequently. These sessions were often performed either on hilltops, in the houses of the sick or in the different places where the person in question had become sick - when it was related to, for example, *susto*.[p]

After more than six months of fieldwork, two families were selected in order to carry out a more detailed observation of the practices used to treat diseases and illnesses in these households. The choice was made based on the criteria of rural-urban, the socio-economic situation and the profession of the majority of family members.

In the Pérez family, all the men worked at the mines and the women did laundry.[q] We selected this family because of the number of people living in the house. A nuclear family lived in each room – a father, mother and children, around 5 members in total. Apart from all the members of the Pérez family (formed by four nuclear families with ten children), two rooms were rented to other families. In addition, there was another room to accommodate people from rural areas who stayed for a short time in the city. In other words, the house could accommodate some thirty people, both family members and visitors. The women in the house were of different generations and this allowed us to observe how age influenced prevention and health care attention in the case of disease.

Similarly, the Jiménez family, merchants of urban origin, had more or less the same number of members in the house, women of different generations and a bedroom to accommodate people from rural areas. This allowed us to observe the health care practices of the rural as well as the urban population. The Jiménez family was different because

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its members were urban merchants, with a slightly higher spending power, given that some of the Quechua women in the family went to university.

This selection allowed us to observe health practices in the same ethnic group and observe differences in social classes, socioeconomic situation, differences between rural and urban population and differences between women of different generations.

The families received frequent visits at their homes from rural and urban traditional healers, allowing us to observe health-related practices.

Living with the families allowed us to follow the therapeutic schedules for diseases and illnesses that appeared from day to day: diarrheas, intestinal infections, *susto*, *amartelo*, backache, headache, a diversity of accidents, *brujería*, alcoholism, *sobreparto*, unwanted pregnancy, abortion attempts, domestic violence, influenza, colds, *orejo*, *estomago vacío*, among others.[r] In other words, we were able to observe the schedules[s] for biomedical diseases as well as folk illnesses, observing how important the latter were when it came to the population attributing a cause of death.

By using the interview technique, we were able to register the representations of the different social actors that converged around our problem. We conducted semi-structured interviews, always open to the emergence of new questions in connection with the context where they were performed. A total of 37 semi-structured interviews were conducted, all of them in Spanish.

Additionally, we conducted group interviews at each health center (14 urban health centers and 3 rural centers, close to the city of Potosí) aimed at identifying the problems of each center and of the population they treat. The other aims were to collect the data for the most frequent pathologies in each area and the representations of the health personnel in relation to the other non-biomedical health systems.

The interviews were conducted in three different places, encompassing the different medical systems that are found in the city of Potosí. The informants were selected as follows:

a. *In the biomedical system*: 17 group interviews in all the health centers. A group interview in the hospital with two members of the Willaqkuna (Intercultural Health Process conducted in the Hospital Daniel Bracamonte in the city of Potosí), and two interviews in pharmacies in the selected neighborhood, with the intention of discovering whether or not the pharmacy was providing primary care to the neighborhood's population.
b. *In the traditional medical system*: informants were selected according to the position they occupied in the traditional institutions and among the traditional healers named by the neighborhood inhabitants. Six individual interviews were carried out with three traditional healers. The aim of these interviews was to gather knowledge about folk illnesses, health/disease/care processes in this medical system, and the traditional healers' representations about biomedicine, and more precisely about the health care personnel in the primary care centers.
c. *In the self-care system*: ten interviews were conducted with different mothers from low socioeconomic classes who were living in the selected neighborhood. Three of these interviews were held in groups, with all the women in the family group (usually three generations). The majority of the information collected about this medical system was gathered through informal conversations held in daily chats.
d. *In the medical-religious system*: three interviews were carried out with health representatives from the Catholic and Evangelical churches, both from the selected neighborhood: a representative from the Catholic Church in Potosí, and two Evangelical pastors, a woman and a man.

By observing all the health systems, religious, biomedical, traditional and self-care, from the practices performed within them, prevention, diagnosis and care for diseases and illnesses, to the follow-up of therapeutic schedules, we were able to observe and analyze in greater

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detail the self-care system, in which all these forms of health care converge.

THE EPIDEMIOLOGICAL REGISTER

The epidemiological register in the city of Potosí – as well as in other parts of Bolivia – is compiled by health care personnel (doctors, nurses and nursing assistants) through data registration forms where the reasons for the patient's visit are recorded. The statistical data entered in the epidemiological forms are filed with the Departmental Health Service (SEDES) and are then delivered to the Department of Health where the country's epidemiological data are processed by the National Health Information System (SNIS).

The data registration form is designed by the SNIS and the National Statistics Institute (INE) [*Instituto Nacional de Estadística*] and influenced by guidelines from the Pan-American Health Organization (PAHO), the World Health Organization (WHO) and international cooperation agencies. For several decades, the importance of data collection was focused on maternal and child health, as the epidemiological registers in peripheral countries showed a high rate of maternal and child mortality and it was in these countries that more programs and policies targeted at women and children were developed. However, in the case of Bolivia little change was detected in the long term. Standardization of health policies and programs in Latin America did not lead to optimal results. The Bolivian case is a good example because of its ethnic diversity (there are 36 different indigenous groups), with diverse cultures and different concepts of health, disease and health care; however, this diversity is not considered in the data registration. The data is based on the idea that all Bolivians are the same whether they are from the highlands or the lowlands. Therefore, they presume that a *Moseten* indigenous subject is the same as a *Quechua*, a *Baure*, a *Yaminahua*, an E*ese-ejjas*, a *Pakahuara*, a *Siriono*, a *Canichana*, a *Cayubaba*, a *Itonama*, a G*uaraní* indigenous subject, a mestizo or a criollo. The fact that heterogeneity is not taken into account in the epidemiological data registration forms results in a homogeneous register where differences are not shown; and, since the register is homogeneous, the results related to the health care needs in the different departments also become homogeneous; therefore, they do not come close to reflecting the reality of the country.[t]

Failure to include diversity means that certain categories are not taken into account. Gender, as well as ethnicity, plays a role, as men practically do not appear in the records. This is not because men have a higher life expectancy than women, but because the policy guidelines are sustained by the epidemiological data which show a high rate for maternal and child mortality. The international economic contribution was focused on paying more attention to the maternal and child issue.[u] This fact led to the creation of specific forms for the registration of maternal and child issues, leaving aside the epidemiological reality not included in these closed forms. This situation meant that for many years the most important data recorded in the records were focused on the deaths of women and children and that most programs then and now are centered on them.

Another problem in the epidemiological records is that they are compiled from data gathered exclusively from the patients who reach the health services. The epidemiological data are not collected in the communities and neighborhoods but are based exclusively on the people who attend the health services. Therefore, there is an under-reporting of the most relevant diseases and causes of disease and death of the population, considering that in the Andean area of Bolivia, principally rural areas, many health centers are seldom visited. It is worth mentioning the existence of numerous clandestine cemeteries, where deaths are not reported and, therefore remain unregistered.

Low attendance to health services by the Andean population is due to the poor problem-solving capacity of these centers, the

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ill-treatment of the population by the health care personnel, the population's lack of trust in the health service and the lack of free public health care.[15] The existence of clandestine cemeteries is partially due to poverty. Many people do not have enough resources to give a legal burial because a death certificate is required for burial and land must be purchased. In other cases, people do not want deaths such as, infanticides, abortions, suicides or murders to be reported.

UNDERSTANDING HOW THE RECORDS ARE COMPILED

The total population of the municipality of Potosí in the year 2002 amounted to 145,057 inhabitants[10] and the average life expectancy at birth in the Department of Potosí was 57 years (55 years for men and 59 for women).[9] Despite the fact that life expectancy in Potosí was lower in men than in women most health programs were directed at women.

In the city of Potosí there are 14 Primary Health Care Centers. Almost all of these centers are staffed by a doctor, a nurse, a nursing assistant, a social worker, an office clerk (who in most cases oversees the center's pharmacy), nursing and medical students; and, in certain cases, a dentist and the Community Health Representatives (who act as mediators between the community and the health center; these are the only members of the health personnel who are not paid).

Each primary care center is responsible for a population ranging from between 9,000 to 13,000 inhabitants. Each consultation takes approximately 15 minutes, and most of that time is spent filling in the forms. The forms are filled in by hand, as health centers are not computerized, and are later sent to the SEDES and SNIS.

Some professionals decide not to devote much time to examining patients because of the great amount of data that has to be entered. On the contrary, other professionals prefer to provide better care and, therefore, have no time to fill in the forms. In this case, the paperwork is often set aside until the end of the day or the beginning of the following week. This means that when the doctors fill them in they have to rely on their memory and on occasions when they cannot remember the data, they make it up. As the records only include certain diseases these are the only ones registered.

When the doctor cannot define the causes of death, it is normally registered as death by cardiorespiratory arrest. Therefore, it is one of the main causes of death in Bolivia and in Potosí. During the research period in the city, the health programs were directed at women and children (except for the plan against tuberculosis). That is, consultations with the doctor were covered by the SUMI for pregnant women and children up to five years of age. Consultations within the programs for family planning and tuberculosis were also free of charge. The rest of the consultations had to be paid for. This is one of the reasons why there are almost no consultations from men in the public primary care centers, and why the records for pathologies affecting men are scarce. In the city of Potosí, when a man suffers from any type of disease, he normally turns to a private doctor.

This way of recording data produces the results shown in Figures 1 and 2, extracted from official publications on the main causes of death in Bolivia and Potosí. As we can see, the causes of death are classified into big groups without considering either the specificity of the diseases or, as we shall see, the real causes of deaths in the city.

The reason for reproducing the data exactly as they were officially published in Figures 1 and 2 is of special importance as they serve as a basis for the formulation of health policies and programs both at national and international level (international partnerships, NGOs and development agencies that work in Bolivia); despite the fact that there is an under-recording of 66% in the national territory as a whole.[16 p.12] As we can see in Figures 1 and 2, the causes of death are not detailed "for fear of erroneous interpretations due to the limitations of the data."[16 p.22]

Bolivia: Mortalidad por grandes grupos de causas

FRECUENCIAS ABSOLUTAS

Código CIE 10	1995	1996	1997	1998	1999	2000	2001
Enf. Infecciosas	1316	1097	1151	1212	1108	963	849
Tumores	997	953	1103	1086	1127	1106	1048
Enf. Sangre	144	192	180	170	138	134	104
Enf. Endócrinas	582	543	557	581	542	468	414
Enf. Mentales	202	219	199	176	153	159	149
Enf. S. Nervioso	224	211	234	221	192	189	165
Enf. O. Sentidos	2	1	0	1	1	1	0
Enf. S. Circulatorio	1716	1704	1832	1885	1778	1607	1583
Enf. S. Respiratorio	1590	1354	1556	1458	1336	1061	1121
Enf. S. Digestivo	890	885	980	951	937	901	961
Enf. Piel	7	12	13	11	16	18	13
Enf. Osteo-musculares	39	23	25	30	33	28	36
Enf. S. Urogenital	487	451	497	484	456	417	469
Embarazo y Parto	54	48	46	32	40	18	23
Enf. Perinatales	319	329	328	346	283	239	235
Malf. Congenitas	27	33	39	24	33	31	20
S/S mal Diagnóstico	13523	13110	14513	14192	13641	10474	9152
Consecuencias C. Ext.	1286	1269	1407	1456	1270	1246	1209
Causas Externas	1334	1323	1505	1385	1213	1112	1052
Tot. Causas Exter	2620	2592	2912	2841	2483	2358	2261
TOTAL	24739	23757	26165	25701	24297	20172	18603

TASA POR 100.000 HABITANTES

Código CIE 10	1995	1996	1997	1998	1999	2000	2001
Enf. Infecciosas	17,8	14,5	14,8	15,2	13,6	11,6	10,2
Tumores	13,5	12,6	14,2	13,7	13,8	13,3	12,6
Enf. Sangre	1,9	2,5	2,3	2,1	1,7	1,6	1,2
Enf. Endócrinas	7,9	7,2	7,2	7,3	6,7	5,6	5,0
Enf. Mentales	2,7	2,9	2,6	2,2	1,9	1,9	1,8
Enf. S. Nervioso	3,0	2,8	3,0	2,8	2,4	2,3	2,0
Enf. O. Sentidos	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Enf. S. Circulatorio	23,2	22,5	23,6	23,7	21,9	19,3	19,0
Enf. S. Respiratorio	21,5	17,8	20,0	18,3	16,4	12,7	13,5
Enf. S. Digestivo	12,0	11,7	12,6	12,0	11,5	10,8	11,5
Enf. Piel	0,1	0,2	0,2	0,1	0,2	0,2	0,2
Enf. Osteo-musculares	0,5	0,3	0,3	0,4	0,4	0,3	0,4
Enf. S. Urogenital	6,6	5,9	6,4	6,1	5,6	5,0	5,6
Embarazo y Parto	3,0	2,6	2,4	1,6	2,0	0,9	1,1
Enf. Perinatales							
Malf. Congenitas	0,4	0,4	0,5	0,3	0,4	0,4	0,2
S/S mal Diagnóstico	182,7	172,8	186,9	178,5	167,6	125,8	109,9
Consecuencias C. Ext.	17,4	16,7	18,1	18,3	15,6	15,0	14,5
Causas Externas	18,0	17,4	19,4	17,4	14,9	13,4	12,6
Tot. Causas Exter	35,4	34,2	37,5	35,7	30,5	28,3	27,1

Fuente: Estadísticas de Mortalidad de Bolivia, datos provenientes del Registro Civil 1995 – 2001
1 CIE 10: Clasificación Internacional de Enfermedades en su décima revisión, Organización Mundial de la Salud.
Las tasas pueden no ser representativas por el subregistro existente.

Figure 1. Mortality by major groups of causes. Bolivia, 1995-2001. Reproduction of the data officially published in 2005.

Source: Ministry of Health and Sports.[16 p.88]

Potosí: Mortalidad por grandes grupos de causas

FRECUENCIAS ABSOLUTAS

Código CIE 10	1995	1996	1997	1998	1999	2000	2001
Enf. Infecciosas	123	96	94	109	87	90	59
Tumores	54	45	59	45	67	66	44
Enf. Sangre	12	12	13	10	12	13	9
Enf. Endócrinas	50	55	67	60	51	40	28
Enf. Mentales	25	36	37	28	27	20	10
Enf. S. Nervioso	19	27	25	20	14	11	11
Enf. O. Sentidos	0	0	0	0	0	0	0
Enf. S. Circulatorio	118	155	173	157	124	125	80
Enf. S. Respiratorio	152	149	138	147	148	119	77
Enf. S. Digestivo	68	69	77	80	60	57	38
Enf. Piel	0	1	0	0	0	1	0
Enf. Osteo-musculares	1	0	3	2	1	3	1
Enf. S. Urogenital	40	48	64	42	27	22	20
Embarazo y Parto	5	3	2	2	2	1	1
Enf. Perinatales	49	51	50	51	45	37	14
Malf. Congenitas	5	3	0	2	0	3	1
S/S mal Diagnóstico	2008	1945	2364	1902	1723	1156	1001
Consecuencias C. Ext.	118	107	110	151	150	101	86
Causas Externas	235	261	287	227	203	132	123
Tot. Causas Exter	353	368	397	378	353	233	209
TOTAL	3082	3063	3563	3035	2741	1997	1603

TASA POR 100.000 HABITANTES

Código CIE 10	1995	1996	1997	1998	1999	2000	2001
Enf. Infecciosas	16,9	13,0	12,6	14,4	11,4	11,6	7,6
Tumores	7,4	6,1	7,9	6,0	8,8	8,5	5,7
Enf. Sangre	1,6	1,6	1,7	1,3	1,6	1,7	1,2
Enf. Endócrinas	6,9	7,5	9,0	7,9	6,7	5,2	3,6
Enf. Mentales	3,4	4,9	5,0	3,7	3,5	2,6	1,3
Enf. S. Nervioso	2,6	3,7	3,3	2,6	1,8	1,4	1,4
Enf. O. Sentidos	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Enf. S. Circulatorio	16,2	21,0	23,2	20,8	16,2	16,1	10,3
Enf. S. Respiratorio	20,9	20,2	18,5	19,4	19,3	15,4	9,9
Enf. S. Digestivo	9,3	9,4	10,3	10,6	7,8	7,4	4,9
Enf. Piel	0,0	0,1	0,0	0,0	0,0	0,1	0,0
Enf. Osteo-musculares	0,1	0,0	0,4	0,3	0,1	0,4	0,1
Enf. S. Urogenital	5,5	6,5	8,6	5,6	3,5	2,8	2,6
Embarazo y Parto	3,0	1,8	1,2	1,2	1,2	0,6	0,6
Enf. Perinatales							
Malf. Congenitas	0,7	0,4	0,0	0,3	0,0	0,4	0,1
S/S mal Diagnóstico	275,8	263,7	316,6	251,6	225,1	149,2	129,2
Consecuencias C. Ext.	16,2	14,5	14,7	20,0	19,6	13,0	11,1
Causas Externas	32,3	35,4	38,4	30,0	26,5	17,0	15,9
Tot. Causas Exter	48,5	49,9	53,2	50,0	46,1	30,1	27,0

Fuente: Estadísticas de Mortalidad de Bolivia, datos provenientes del Registro Civil 1995 – 2001
1 CIE 10: Clasificación Internacional de Enfermedades en su décima revisión, Organización Mundial de la Salud.
Las tasas pueden no ser representativas por el subregistro existente.

Figure 2. Mortality by major groups of causes. Potosí, 1995-2001. Reproduction of the data officially published in 2005.

Source: Ministry of Health and Sports.[16 p.117].

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The Ministry of Health and Sports itself recognizes that:

> This information shows the weaknesses of the statistics on mortality derived from the death certificates of the civil registries of Bolivia.[16 p.4] [Own translation].

However, despite this, these are the epidemiological data that both national and international health agencies rely on.

The ethnographic method used during the year of fieldwork allowed us to obtain data that are not shown in the epidemiological records and to understand the context in which they appear.

PUBLIC HEALTH ISSUES NOT REGISTERED IN THE EPIDEMIOLOGICAL DATA

Although we did not conduct a quantitative study, a one-year stay in Potosí allowed us to find out about the frequent deaths and accidents not only at the Cerro Rico mines, but also in the surrounding mines. News of deaths or accidents at the mines was only reported by a few radio stations in the city. These deaths were not reported in local newspapers or on television. However, despite the fact that there were few vehicles in the city at that time, traffic accidents were covered on the front page of newspapers. Deaths at the mines were no longer news in a place where such deaths were commonplace.

This cause of death was not registered in the epidemiological data, despite the fact that the population and the health care personnel considered it one of the main causes of death among the city's men. Accidents and occupational deaths are recorded by the police if reported at all. One of the problems is the dissociation that exists between the records kept by the police, social services, the cemeteries, and the Public Health system. Occupational accidents cause premature death in men and a lower life expectancy compared to women.

Another issue that came up in the research was adolescent suicide. During the fieldwork, Pedro, the son of an informant, committed suicide. After the funeral, we started to ask questions about suicides and discovered that suicides by taking rodenticides or by hanging[v] were common in adolescence. These deaths were not recorded in the epidemiological data because there is not a box to tick with the option "suicide" on the forms. This is not included in Bolivian public health care data (as we can observe in Figures 1 and 2). It is considered exclusively a judicial problem.[w]

Until relatively recently, Catholic priests did not celebrate the funeral mass for a person who committed suicide. Therefore, families often concealed the cause of death in order to receive the blessing of the priest and prevent the soul from going to purgatory. According to local beliefs, a dead person will not be able to rest unless mass is celebrated and the blessing of the priest is given.

We analyzed the conditions under which these events occurred. One of the biggest issues in Potosí is alcoholism, which had an influence on the number of suicides, all types of accidents, homicides, domestic violence, unwanted pregnancy in adolescents and rapes in the family.

It is known that in the mining areas of the Andean region every Friday workers must *ch'allar al Tío*,[x] which involves drinking alcohol that together with tobacco and coca leaves are believed to be elements of this world to connect with the gods. This helps miners to find minerals and protects them from accidents inside the mine. According to public health system, this practice is associated with cultural practices *that cannot be modified because they are part of culture*, to such an extent that it is not considered significantly important to be included in the morbimortality forms.

According to Absi,[17] an anthropologist who conducted a research study into the work at the mines, alcohol is one of the main causes of death among miners.

On the one hand, in the Quechua culture there is the Friday *ch'alla* practiced by the

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miners and the consumption of alcohol in ritual ceremonies, such as offerings to the *Pachamama*, weddings and burials. On the other hand, there is the use of alcohol by adolescents (in Potosí it is very common to find drunk adolescents on the street), which is not related to cultural aspects but due to socioeconomic aspects. Despite this, health personnel cannot register alcoholism as a cause of death or disease, because this pathology does not appear on the forms although it is considered one of the main causes of death in the city, and recognized by the population and by all medical systems.

According to the epidemiological data, one of the main causes of death in the infant population is malnutrition. We observed that malnutrition is also a cause of death in the elderly but this fact is not recorded. Due to extreme poverty many households in Potosí are forced to choose between feeding the children or the elderly. They usually choose to feed the children. The elderly are not shown on the records with specific problems.

During the fieldwork, we were able to observe how data was registered for maternal and child issues. The health care personnel were conducting a survey at the houses where there had recently been births. The questionnaire was about the pregnancy, when, where and whether the mother or the infant had suffered any complications. The registration was carried out in houses that were known to have had a *wawa* (term used for children and babies) during recent months.

We arrived at the houses, the nurse knocked at the door and asked for Mrs. X. While standing at the door of the house, the nurse filled in the form in about three minutes.

We will highlight a part of the dialogue to explain how the method used to collect quantitative data is not taken into account (the data collection method is a very important element within the qualitative methodology). So, although figures are produced, the data achieved are not reliable.

> Nurse: *Good morning, we are stopping by houses to ask a few questions... We are from the X health center. Have you had a* wawa *recently?*
> Woman: *Yes.*
> Nurse: *Did you have any problem during the pregnancy?*
> Woman: *No.*
> Nurse: *Have you had any miscarriages or abortions?*
> Woman: *No.*
> Nurse: *You have never had any complications...or miscarriages...or abortions?*
> Woman: *No.*
> Nurse: *Are you vaccinating your child? Are you taking your child to the health center?*
> Woman: *Yes.*
> Nurse: *Well, do not forget to take the children to the center. Thanks have a nice day.*

The same answers were reiterated by the women participating in the surveys carried out by the health personnel. They all replied that they had never had an abortion or miscarriage. The method of asking questions and the time spent on gathering the information were the reasons why the recorded data did not correspond with reality. Obtaining real, reliable information through a survey on such a complex subject is almost impossible if the survey is not carried out within the context of a qualitative methodology. It is like asking: "Have you ever killed someone?" knowing that murder is punished by law and that a murderer is a social subject rejected by the society in which he or she lives. The answer to a closed survey will always be "no."[y]

By staying in the subjects' homes and gaining the women's trust we were able to obtain data different from that recorded by the health team. Meeting doctors who practiced abortions in the city and finding out about the many traditional practices that women used to interrupt pregnancy allowed us to discover these unregistered data. It gave us an understanding of these practices and the reasons why they were hidden. Undoubtedly, another reason for this is the fact that abortion is illegal in Bolivia and in the Quechua culture, where it is believed to attract evils, illnesses and diseases to the community.

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Little by little it was possible to observe domestic violence at homes and to obtain information on rapes of stepdaughters by stepfathers, which were hidden from the authorities and the social services. It was so common in the popular sectors of the city that everyone spoke about it as if it were something normal. When we learned about the first case, we started to find out more and discovered a surprisingly high number of women who had suffered this aggression. In Potosí, houses are highly overcrowded and parents and children normally sleep in the same bed. If we add to this the high rate of alcoholism and the fact that it is common to find men and women who have second or third partners, the presence of stepfathers in homes is not unusual.

The ethnographic method allowed the researchers to gather information which was known to the health care personnel but was not recorded in the epidemiological data. Either they did not have the information, or, if they did, it was considered a social issue rather than a health problem.

It is important to understand that the health personnel have valuable information about the causes of diseases and death which is not taken into account either by the SEDES, the SNIS or the INE, agencies that work exclusively with closed categories and data that are registered almost exclusively by the health services. However, to understand the real issues the knowledge of the population and the representatives of other health care systems found in a specific place needs to be taken into account and not only that of the health care personnel.

THE ETHNOGRAPHIC METHOD IN THE COLLECTION OF INFORMATION FROM ALL OF THE MEDICAL SYSTEMS

Identifying all the representatives of the health care medical systems implies recognizing them as social subjects with the greatest expertise in health and holders of important information for the collection of epidemiological data.[z] As we have seen, the medical systems that are present in the city of Potosí are the biomedical system, the traditional medical system, the religious-medical system (through the evangelical church) and the most important system: that of self-care.[8]

Each one of these systems recognizes different causes of death so it is important to take them into account since all of the diseases, illnesses and deaths are dealt with in one or more of these systems. If the data registration is carried out exclusively in the biomedical system, we obtain an under-recording and results far from reality, as we can see in the current epidemiological data.

According to the health care personnel, the most frequent reasons for seeking health care in the Potosí primary care centers were malnutrition, followed by acute respiratory infections (ARI) and acute diarrheal diseases (ADD), sexually transmitted diseases, tuberculosis, scabies, varicella and allergies. Although, many of the reasons for seeking health care were for prenatal care and children.

The health care personnel at the primary care centers considered that the main cause of death in the city of Potosí was occupational accidents in the mines, despite not being reported as such. Other causes were tuberculosis, silicosis, alcoholism, and complications during labor.

According to the health care personnel, the main causes of death in children were diarrhea, accidents, malnutrition caused by diarrhea, pneumonia and dehydration; while in the case of adolescents, the main causes were suicides and accidents. On the other hand, the health personnel at the primary care centers considered domestic violence, alcoholism and sanitation problems to be the most important public health problems in the city, despite the fact that they did not figure in the official data.

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Table 1. Main causes of death according to the health personnel of primary care centers. City of Potosí, Bolivia 2004.

MORTALITY IN INFANTS	MORTALITY IN MEN	MORTALITY IN WOMEN
ARIs[a]	Occupational accidents	Complications during pregnancy
ADDs[b]	Silicosis	Accidents
Pneumonia	Tuberculosis	Cancer
Malnutrition	Alcoholism	
Accidents	Cardio-respiratory problems	

Source: Own elaboration
a. Acute Respiratory Infections; b. Acute Diarrheal Diseases

DEATHS IN POTOSÍ ACCORDING TO HEALTH CARE PERSONNEL

According to the health care personnel (Table 1), deaths are highest in the male segment of the population. The most frequent causes of death are occupational accidents at the mines, followed by those caused by silicosis, alcoholism and tuberculosis. In the female population segment, complications during labor and puerperium are still the first causes of death – although it is thought to be at a much lower percentage than in rural areas – followed by accidents and cancer. Infant mortality is high in the city, and the main causes are ARIs and ADDs, followed by pneumonia, malnutrition and accidents.[8]

DEATHS ACCORDING TO TRADITIONAL HEALERS

According to traditional healers (Table 2), the most frequent causes of death are similar to those described in the data gathered by mothers: accidents, *mal de mina*, *gloria, qayqasqa,*[aa] labor, *embrujo* and *susto*. The difference between the causes of death in male and female population lies in occupational accidents in the case of men and in labor for women, while *susto* is the major cause of death in infants. In the case of the illness of *embrujo* in the infant population, although the spell is cast on parents, it normally affects other more fragile members of the family, the infant population.[8]

Table 2. Main causes of death according to the traditional healers of Potosí, Bolivia 2004.

MORTALITY IN INFANTS	MORTALITY IN MEN	MORTALITY IN WOMEN
Susto[a]	Occupational accidents	*Labor*
Embrujo[a]	*Embrujo*	*Gloria*
Gloria[a]	*Susto*	*Embrujo*
Respiratory diseases	*Qayqasqa*[a]	*Susto*
	Alcoholism	*Qayqasqa*
		Alcoholism

Source: Own elaboration
a. Folk illness

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Table 3. Main causes of death according to the evangelical pastors of the city of Potosí, Bolivia 2004.

MORTALITY IN INFANTS	MORTALITY IN MEN	MORTALITY IN WOMEN
Diarrhea	Occupational accidents	Breast Cancer
Malnutrition	*Mal de mina*[a]	Uterine Cancer
	Alcoholism	*Brujería*
	Brujería[b]	
	Suicide (adolescents)	

Source: Own elaboration
a. Local name for silicosis; b. Folk illness

According to these informants, folk illnesses account for most causes of death among the population. The most common causes are accidents at the mine in men and complications during labor in women. For both sexes traditional healers recognize alcoholism as an increasing cause of death. They recognize a greater life expectancy in women and a greater number of causes of death in men.

DEATHS ACCORDING TO EVANGELICAL PASTORS

From the perspective of evangelical pastors (Table 3), the most frequent causes of death in the infant population of Potosí are diarrhea and malnutrition while for men, as seen in the options of other medical systems, we find yet again accidents related to work at the mines, *mal de mina*, alcoholism, and also *brujería* as causes of death. The most frequent causes of death among adolescents are considered to be suicides and cancer and *brujería* among women.[8]

DEATHS ACCORDING TO MOTHERS

In Table 4 we can observe the main causes of death in infants and adults according to mothers.[8]

As for the factors determined by sex, we can see that the causes are related to the

Table 4. Main causes of death according to mothers of the city of Potosí, Bolivia 2004.

MORTALITY IN INFANTS	MORTALITY IN MEN	MORTALITY IN WOMEN
Susto[a]	*Mal de mina*[b]	During labor
When newly born	Tuberculosis	*Sobreparto*[a]
Pneumonia	Accidents at the mine	Abortion and miscarriage
Estómago vacío[a]	Alcoholism	From doing laundry[a]
Orejo	Accidents	Heart problems
Accidents	*Embrujo*[a]	*Embrujo*
Cold[a]	*Arrebato*[a]	Cancer
Malnutrition	*Gloria*[a]	*Arrebato*
		Gloria

Source: Own elaboration
a. Folk illness; b. Local name for silicosi

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type of work that each sex performs, work at the mines: *mal de mina*, tuberculosis, accidents and alcoholism in men and *from doing laundry* and miscarriage or abortion in women. The majority of working women work as housekeepers, small street vendors or laundry women or are employees of the National Employment Plan (PLANE) [*Plan Nacional de Empleo*]. We were able to verify that the work done by women in PLANE is construction work, which involves lifting very heavy stones. Most of the women that work in this program carry their children on their backs and pregnant women suffer miscarriages due to the physical effort required.

In most cases, laundresses wash clothes with cold water, because of the low temperatures of Potosí, especially during the winter months. This activity contributes to cause what mothers call "death by doing laundry":

> "A pain in the back starts because of the cold, from being all day with your hands in cold water and that pain goes on and on and you get sick and you die."

DEATH ACCORDING TO THE DIFFERENT REPRESENTATIVES FROM THE MEDICAL SYSTEMS

In Table 5 we can observe how the health care personnel[bb] only recognize biomedical diseases, while mothers, as well as traditional healers and evangelical pastors include both popular and biomedical diseases in the main causes of death in the city of Potosí.

As we can see in Table 5, occupational accidents and diseases related to mining such as silicosis, tuberculosis and alcoholism were the pathologies recognized by all medical systems (biomedical, traditional, religious and self-care). However, only tuberculosis figured in the epidemiological data. Folk illnesses such as *susto*, *qayqasqa*, *orejeadura*, cold, *estómago vacío*, *gloria*, *sobreparto* and *embrujo* are not recognized by the biomedical community, but are recognized in the other systems. The self-care system of health care records the greatest number of causes of death in the city of Potosí.

Among the causes of death recognized by all medical systems, those related to male and female work stand out. These data are not reflected in the epidemiological indexes either at national or departmental level. Consequently, there are no health policies aimed at improving working conditions or preventing occupational accidents.

At the same time, we observe that the representatives from all medical systems, except those from the biomedical system, recognize both biomedical diseases and folk illnesses, such as susto and *brujería*, as causes of death in the city of Potosí.

From what has been discussed so far, it seems that the most relevant problems in the city of Potosí are alcoholism, followed by suicide in adolescents, malnutrition in the elderly and unwanted pregnancy in adolescents; not only because of their level of impact on individual health but also because they affect other aspects of daily life. However, these problems are not considered priorities either in the city or in the Department of Potosí, and there are no special programs that can help alleviate these problems. These problems would not have appeared if a survey had been carried out among the population or among all the health systems. This information was obtained using the ethnographic method, and not just from what social subjects say but by observing their practices.

The main causes of death – at national and departmental level as well as in the municipality of Potosí – are, according to official data, maternal and child health problems; and the most frequent causes are cardio-respiratory diseases and intestinal infections. The epidemiological data only provide partial information on the problem of morbimortality in Bolivia. Data on suicide, homicide, accidents, domestic violence or alcoholism, among others, are recorded by the police and are not included in the epidemiological records of the department. These causes of disease and death must be incorporated in the epidemiological records so that appropriate policies can be formulated in line with the local reality.

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Table 5. Main causes of death according to different representatives from the medical systems of the city of Potosí, Bolivia 2004.

	BIOMEDICAL SYSTEM	TRADITIONAL MEDICAL SYSTEM	RELIGIOUS MEDICAL SYSTEM	SELF-CARE SYSTEM
	Health Personnel	Traditional Healers	Evangelical Pastors	Mothers
Accidents at the mine	x	x	x	x
Mal de mina[a]	x	x	x	x
Tuberculosis	x	x		x
Alcoholism	x	x	x	x
For doing laundry[b]				x
Embrujo[b]		x	x	x
Labor	x	x		x
Sobreparto[b]		x		x
Gloria[b]		x		x
Abortion and miscarriage				x
Pneumonia	x			x
Estómago vacío[b]				x
Cold[b]				x
Orejadura / orejo[b]		x		x
Heart problmes				x
Diarrhea			x	x
Respiratory diseases		x		
Accidents	x	x	x	x
Suicide			x	
Acute Diarrheal Diseases	x		x	
Acute Respiratory Infections	x			
Qayqasqa[b]		x		
Arrebato[b]				x
Malnutrition	x		x	x
Cancer	x		x	
Susto[b]		x		x

Source: Own Elaboration.
a. Local name for silicosis; b. Folk illnesses.

AS A CONCLUSION

As we have seen, it is not easy to detect certain pathologies and public health problems. Therefore, data must be obtained from health status diagnoses made through the ethnographic method, so that health programs and policies are in line with reality.

However, if our stay in the field had been for four months, as was initially planned, not even half of the information would have been obtained compared to the information obtained after a year of continuous fieldwork.

The ethnographic method helped reveal certain public health problems that were not recorded in the epidemiological data. It also helped clarify why they happen and the context in which they appear. Most of the health programs in Potosí were centered on women and children, but this research study showed that the causes of death and

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the greatest public health problems in the city were in men and adolescents. If the data registration forms are not revised, maternal and child problems will always appear as prevailing and all the health programs will be directed to the same sector of the population.

We can conclude that in order to discover the real causes of morbimortality we need to know the causes of death recognized by the biomedical system and those recognized by all the other systems used by the population. In this way, all pathologies will be recorded, those recognized by institutional medicine and illnesses recognized by the population, which are different in each culture and society.

S*usto*, for instance, is considered the main cause of death in infants by the population of Potosí. One of its first symptoms is diarrhea. And diarrhea is, at the same time, the first cause of death in infants recognized by the health services in the city. However, the causes of *susto* and diarrhea, the way of treating these two pathologies and the meaning assigned to them is totally different. If the intention is to implement a health program in the Quechua culture to reduce infant mortality, these elements must be known, in addition to the external aspects such as water and environmental pollution and food issues.

There are several aspects that need to be considered in order to ensure that health programs and policies are not based on poorly constructed data and so that they have a certain impact on the population. The existence of folk illnesses recognized by each culture should be acknowledged so that they can be shown in the epidemiological records, given that the population recognizes them as causes of disease and death.

The numerical data for statistical recording should be collected within a qualitative methodology using the ethnographic method, thereby ensuring that the data are truly reliable and represent reality. We must tap into the knowledge that representatives from the different health care systems have on the causes of disease, illness and death. From all that we have seen, we can demonstrate the need to carry out anthropological diagnoses that can bring to light the health problems of a certain population, prior to the design of health programs and policies.

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END NOTES

a. This has already been proved by several authors as in the case of Scheper-Hughes' research[1] in northeastern Brazil.

b. The population knows the causes of death and disease, often, more accurately than experts, since the population recognizes the different medical systems and both biomedical diseases and folk illnesses.

c. This aspect is difficult to find given that the health sector and the international partnerships finance diagnoses with processes that usually do not last more than three months, and in many cases are limited to 15 days or a month.

d. What the population claims to do is what is registered in the surveys and forms used as a basis by the departmental health services and the international partnerships.

e. By health workers, we mean all social subjects that work within health services: building caretakers, manual workers, doctors, nurses, social workers, and so on.

f. In Potosí, in 2005, the illiteracy rate was 21.76% in men and 53.3% in women in rural areas, and 3.17% in men and 16.42% in women in urban areas,[9] which means that many people do not notice that products have expired, including drugs from pharmacies and health services.

g. A group interview was conducted in each of the 14 primary care centers in the city and in three rural centers that belonged to the city. In each interview all the professionals who worked in the health center were present: doctor, social worker, nurse, nursing assistant and, in a few cases, odontologist.

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h. To obtain quality information, the focal group technique must be applied when there is trust between the social subjects and the researcher and when the researcher knows the social subjects he or she wants to work with, that is to say, this technique must be applied within the ethnographic method. Many problems arise in the use made of this technique, because it is supposed to provide more information in less time, but if the researcher is looking for quality in the material collected, this technique by itself does not provide reliable information.

i. Observing a neighborhood more deeply does not mean restricting observation exclusively to that neighborhood, since family and extra-family relationships take place in different parts of the city.

j. The Andean religion is closely linked to traditional medicine and involves, among other aspects, belief in elements of nature (mountains, Pachamama, lightening, and so on) that can protect people or make them sick. On many occasions and for several social subjects, this religion is mixed and synthesized with the Catholic religion. But we also find social subjects who, in their practices, use marginal Catholic elements, where the influence of the Catholic religion is minimal and resignified. The informants of different religions were differentiated not only for what they said their affiliation was but also according to the religious practices that they followed.

k. We understand an interview to be all the information obtained through interviews conducted – recorded or not – in which our intention was to gather material. This is different from what we will call additional information, which refers to all those data gathered during informal talks, where questions are not intentional. The additional information turned out to be the best tool used in this ethnography. The number of interviews conducted throughout all the fieldwork was thirty-seven and the individual interviews were conducted after being in the city for four months, when the relationship with the selected informants was closer.

l. Because health/disease/care processes are continuous in the city, numerous therapeutic itineraries could be witnessed (although they were not taken into account). It is rare to enter a home in Potosi and not find any member suffering from a disease or illness.

m. By system of self-care "we refer to the representations and practices that the population use at subject and social group level to diagnose, explain, assist, control, alleviate, endure, cure, solve or prevent the processes that affect their health in real or imaginary terms, without the direct and intentional intervention of health professionals, even when these may be the reference of the activity of self-care."[14 p.14] By medical-religious system in the city of Potosí, we refer to the Evangelical Pentecostal Church, because it is a new way of treating disease and illness by the Quechua population of the city. As in the case of other forms of care such as traditional or biomedical, this system has a whole range of knowledge applied to the prevention, diagnosis and treatment of diseases or illness, as well as a specific classification of pathologies. The axis of its doctrine is the healing of the body and the soul. What characterizes this religious-medical system, just as the biomedical system, is that it defines itself mainly in the category of integration. They both express the need for integration into the majority society, as condition for obtaining an improvement in the population's health. And, in exchange, they abandon the "traditional" by suggesting that "beliefs must be transformed."[8 p.226] For more information on why the category of religious-medical system is assigned to the Evangelical Pentecostal religion see Ramírez-Hita.[8,12] The traditional Andean medical system "has its own way of understanding diseases/illness, and its own techniques of prevention, diagnosis and treatment of folk illnesses and of biomedical diseases as well. The interpretation of a disease – as well as the meaning assigned to it – acquires different characteristics from those recognized by the Evangelical Church and the biomedical system. A disease is seen as a disorder of nature, as the non-compliance with certain rules or social norms. The origin of a disease can be a punishment from the gods or an "evil" caused by another person or by a spirit. Treatments involve restoring the broken order."[8 p.167].

n. Two churches of the Assembly of God [Asamblea de Dios] and one of Free Brethren [Hermanos Libres]. The fieldwork during the healing sessions was conducted at the church most visited by the informant families in cases of disease. In the church of the Assembly of God, 50 healing cases could be witnessed throughout the year.

o. All the names in the article are pseudonyms in order to preserve the anonymity of the people.

p. *Susto* is a very frequently occurring folk illness in the Andean zone, which causes disease and death. In Quechua culture, the individual is composed of three souls; one of them is the *ánimo* that, when detached from the body, causes *susto*. One of the first symptoms of susto is diarrhea.

q. At present, due to the increase in the price of minerals, the youngest women in the family have started to work as *palliris* (cleaning the mineral) at the mines.

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r. *Amartelo* is a folk illness that appears when longing for a person. It commonly appears in babies when breastfeeding is stopped. *Sobreparto* is a folk illness that appears due to "cold" during or after labor. It is considered one of the first causes of death among women. *Orejo/orejadura* is a folk illness that appears when the smell of the dead (whether human or animal) gets inside the person. It is a common cause of death in children, therefore pregnant women avoid going to the cemetery. *Estómago vacío* is another very common folk illness in babies: "it is when the belly turns upside down and they cannot go to the bathroom."

s. After the fourth month of stay in the field, the therapeutic itineraries that could be witnessed were continuous, every day a new case of disease or condition appeared. The number of therapeutic itineraries that could be followed – in these families – was approximately fifty-five, of both biomedical and folk illnesses.

t. These flaws in the data registration can also be seen in central countries, where ethnic diversity is important due to the process of constant migration. This heterogeneity is also not reflected in the epidemiological data.

u. DMost men are not assisted in the public primary health care centers and, this is one of the reasons why men do not appear in these records.

v. The number of suicide attempts is greater than those that are successfully committed. Suicide in the Quechua population is becoming seriously worrying in both urban and rural areas.

w. This can be for various reasons: on the one hand, the denial of an increasing problem in the country, which is known but hidden. On the other hand, indigenous populations have been facing an increase in the cases of suicide during the last decades. The lack of economic and social prospects in the city means that adolescents do not have a clear future, a circumstance that, along with other aspects such as domestic violence and/or alcoholism, undoubtedly influences this problem.

x. *Ch'allar* is the name given to the act of sharing alcohol with the Pachamama and, especially the miners, with the *Tío*. Alcohol is given to the earth with its subsequent intake. "In Potosí, the *Pachamama* is identified with the mountain, in whose core minerals grow. *Tíos* are the chthonic masters of mines and veins, whose exploitation they organize."[17 p. 81] The *tíos* and the dead are related to the underworld."[17 p.115].

y. One of the major problems in the collection of quantitative data in Bolivia is the little importance given to the way the data has been gathered; therefore, it is believed that a survey can be conducted by anyone. For instance, many surveys in the country are conducted by the army, or by students from any degree course, even from secondary schools. Bad data collection ends up influencing the poor construction of data; as happened in 2001, when the INE reported that 90.85% of the Bolivian population declared themselves Catholic, information that is not close to reality at all.[18]

z. The decision not to incorporate the voice of the actors – in this article – is because this information has already been published.[8]

aa. *Mal de mina* is the local name for silicosis. The gloria disease appears when lightning strikes and the smoke gets inside the person. Thunder frightens the person. This illness causes coughing, high temperature and weakening until death. It can only be treated by a traditional healer through a ritual ceremony. *Qayqasqa* is a folk illness considered a disease of the spirit that appears when a person sleeps in sacred places or in "bad places.".

bb. The members of the health personnel did not recognize folk illnesses during the conversations held with them in the health services. However, they do recognize these illnesses in their everyday practices, that is to say, when they perform the role of caregiver in the family network.[15]

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