Argentine Toba

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Alternative Names

There are no current alternative names for the Toba, although Spanish colonizers used the collective term Guaycurú to refer to many indigenous communities inhabiting the Gran Chaco. The name *frentones* ("large foreheads" in Spanish) was in widespread use for eastern Toba bands in the early centuries of contact. The Toba call themselves *Qom* or *Qom'pi* (people).

Location and Linguistic Affiliation

The Toba have inhabited mostly the southeastern and central areas of the Argentine Gran Chaco. The Gran Chaco is a vast region spanning 1,000,000 km^2 through Western Paraguay, Eastern Bolivia, and Northeastern Argentina. It is characterized by a patchwork of savannah grasslands and semi-arid forests, with forests along rivers banks. A marked East–West gradient of rainfall makes the western area considerably drier than the eastern. Seasonal changes in temperature are pronounced. Minimum daily temperatures below 10°C, with occasional frosts, can occur between April and September, whereas maximum daily temperatures above 33°C are frequent and are concentrated between September and March.

At present, Toba communities are found mostly in the provinces of Chaco and Formosa, although peri-urban settlements around major cities in the provinces of Santa Fe and Buenos Aires are increasing in population numbers as well.

The Toba belong to the Guaycurú linguistic family, which also encompasses the Pilagá, the Mocoví, and the Mbayá (Caduveo) (Mason, 1963). However, the number of languages and dialects in what is collectively known as the "Toba" language is still controversial (Braunstein, personal communication). There are at least four mutually unintelligible languages spoken by Toba groups in the Gran Chaco. For example, even when sharing the same Guaycurúan language roots, eastern and western Argentine Toba do not understand each other when they meet (Mendoza, in press).

Overview of the Culture

European soldiers wrote about the Gran Chaco Indians as early as in the mid 1500s (Schmidel, 1970). However, it was not until the early 1900s that ethnographic work began to be published on the Gran Chaco Indians (Boggiani, 1899; Karsten, 1926; Métraux, 1937; Nordenskiöld, 1912). All Gran Chaco indigenous groups used to share similar subsistence economies despite considerable language variation. The groups were traditionally nomadic or semi-nomadic hunter–gatherers, showing occasional horticulture (Braunstein & Miller, 1999; Mendoza & Wright, 1989). Division of labor was manifest among the Toba (Karsten, 1967). Female

gathering played a major role in Chaco economies, complementing the almost exclusively male activities of hunting, fishing, and honey collecting (Braunstein & Miller, 1999; Gordillo, 1995).

The Toba organized themselves in bands composed of groups of extended families. Traditional leadership was limited to extended family heads (Miller, 1980). Shamans stood out as healing specialists and intermediaries between the natural and the supernatural worlds and often also acted as leaders (Métraux, 1946; Miller, 1967, 1980). Monogamy was the main mating pattern. Toba women have had an independent and influential position in their society as a consequence of their central role in the family economy (Braunstein, 1983; Karsten, 1967).

The Gran Chaco Indians successfully resisted Spanish colonization and Argentine expansion policies, until the late 1800s. Until the 1930s most communities still relied on foraging for their subsistence. During the last century, disruptions to their traditional lifestyle and ecological deterioration of the habitat forced many communities to migrate to urban centers and become sedentarized. At present, indigenous communities in the Gran Chaco fall along an acculturation continuum ranging from the more traditional, living in rural, isolated areas, to the more Westernized communities, living in the periphery of most non-indigenous towns in the Gran Chaco and in the cities of Rosario and Buenos Aires (Miller, 1999).

THE CONTEXT OF HEALTH: ENVIRONMENTAL, ECONOMIC, SOCIAL, AND POLITICAL FACTORS

Social, Economic, and Political Context

The Argentine Toba are experiencing a dramatic transition from their original lifestyle to the one offered by the non-indigenous communities. The severe degradation of their original environment together with overpopulation and the overwhelming socioeconomic pressures have considerably diminished the possibility of retaining the traditional subsistence model. The Toba have been described as "an egalitarian society with an immediate-return economy" (Mendoza, in press). Nowadays, Toba communities present varying degrees of economic dependence to the non-indigenous sectors. Rural communities, located in isolated areas by the Pilcomayo and Bermejo rivers, still rely heavily on the forest and wetlands for their subsistence. Hunting, fishing, and gathering items represent up to 75% of their diet during the wet season (Gordillo, 1995). During the dry season (winter), they rely on temporary jobs in nearby towns and on subsidies for large families from the provincial government. Families settled in peri-urban or urban communities only hunt, fish, and gather opportunistically, when they have access to transportation to the forest or the river. They subsist on the wages of the few men with public employment, on the unstable salaries of temporary jobs, and on governmental subsidies. Older women, usually accompanied by young children, may gather food and other goods from the non-indigenous population by asking door to door or simply sitting on the doorsteps of markets and food stores. Most women do not work for a salary and their activities revolve around childcare and household chores. Some women weave baskets or string bags, which they sell as handicrafts in the non-indigenous towns. The percentage of Toba families, both rural and urban, with unmet basic needs varies between 75% and 100%, depending on the province (Costanzó et al., 2001; Delucchi, Fontan, Grichener, & Wassner, 1996).

Integration of the Toba into the Argentine social and political life has been extremely difficult. Education policy, as a basic premise of social equity, has not achieved much success. Schools are not integrated, not even in urban settings. Furthermore, in the province of Formosa, some schools follow the "aboriginal modality." In these schools, non-indigenous teachers teach a shorter version of the "regular" curriculum, while bilingual indigenous teachers offer native language writing and reading courses. Although this schooling modality was intended to bridge the language gap in the classroom, it is being seriously criticized by Toba delegates, who argue that their children's opportunity to an equal education is being radically curtailed (Alegre & Francia, 2001). Up to this date, no Toba person in the country has achieved a professional (or equivalent) degree.

The political participation of all Chacoan Indian groups has been reduced to negotiation of their vote. Voting is compulsory in Argentina. Around national and local election times, political parties gain votes by offering food and clothes. However, there is an increasing tendency in urban settlements to form civil associations that can legally request community development funds

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from national and international organizations. For example, a civil association formed in a Toba village in the province of Formosa is devoting its efforts to enforce the implementation of the *Ley Integral del Aborigen* (Aboriginal Integral Law), sanctioned in 1984 but never properly enforced (Alegre & Francia, 2001).

Health Situation

There are no current demographic statistics for the Toba, but the Institute of Aboriginal Communities of Formosa estimates a total of 70,000 Toba people living in Argentina. As recognized Argentine citizens, the Toba have access to free medical services at public hospitals and health centers. However, it is a common complaint that indigenous people are constantly discriminated against at these places. Complaints from Toba people range from being ignored at hospitals to being abused and mistreated. The provincial governments have acknowledged the lack of communication between indigenous and non-indigenous sectors in the arena of public health. In order to alleviate this situation they implemented a plan that includes training health agents at the local communities. These agents are in charge of monitoring the health of a given number of families in their own villages, reporting illnesses and new pregnancies, administering medicines, and promoting health education. The success of this strategy remains to be evaluated, but results seem very promising.

Epidemiological statistics for each life cycle stage are given below. Briefly, the current health situation of the Toba is that of poor communities in developing countries. Infant and child mortality are high and mainly a consequence of preventable causes, such as diarrhea, dehydration, and respiratory infections. Tuberculosis is prevalent across all ages and its incidence is more pronounced in rural communities. Cardiovascular problems and obesity-related diseases are becoming increasingly common among sedentarized, urban Toba.

Medical Practitioners

Among the Toba there are different specialists who are in charge of restoring health (Karsten, 1932; Métraux, 1946, 1967). The main figures associated with medical therapy in the larger part of Toba communities are the shaman (*pi'oGonaq*) and the "curandero" (*ratanataGaq*). Nevertheless, this distinction is somewhat artificial because the functions fulfilled by both often coincide in the same person.

In general terms, the shaman has the capability of curing and killing through the invocation and collaboration of his auxiliary spirits (*nataq*). The shaman's techniques include sucking out the illness that has materialized in an object, blowing on the area of the extraction, and praying to auxiliary spirits. The shaman's calling is restricted to those who have inherited from their father or grandfather the power that allows them to contact non-human entities from different spaces of the cosmos. However, certain people can develop ties with non-human beings who later endow them with the power to cure and kill and, therefore, to become a shaman (Métraux, 1967; Tola, 2001; Wright, 1997).

In contrast, the "curandero" is not characterized by the "cure–kill" ambivalence of his therapeutic powers. His knowledge allows him only to cure with plants, whose medicinal powers are known by the Toba through experimentation. In general, this category of medical practitioners includes persons that participate in the Toba Evangelic cults present in the communities (Miller, 1967; Wright, 1990). Their healings are often done by the extraction of evil spirits out of the sick body through collective prayers.

There are other specialists whose knowledge is more limited and who carry out only the healing of specific illnesses, such as those affecting infants and children. These practitioners acquire their knowledge after a personal experience related to the illness and the proximity to death. The acquisition of curative faculties often relates to the presence in dreams or in moments near death of some non-human being who gives to the ill person the power of curing one specific illness. Unlike shamans, the "curandero" and these specialists had at some time a relation with powerful non-human beings, but they are not in permanent contact with them neither in dreams nor when the healing takes place.

Classification of Illness, Theories of Illness, and Treatment of Illness

Sources of illness include spells attributed to the will of shamans, non-human entities, or sorcerers, as well as to

violation of restrictions imposed during specific moments of the life cycle (Métraux, 1937; Nordenskiöld, 1912). Illnesses caused by shamans can only be cured by another shaman. The healer extracts from the body of the victim the object sent by the aggressor shaman. Once the source of evil has been eradicated, the shaman introduces the object into his own body by friction, transforming it to a source of power for him. The non-human entities can generate illnesses in people by materializing in the forest, in dreams, or during the night. The type of illness varies depending on the entity. In general, if the illness is not cured by a shaman whose spirit can talk to the insulting entity, the ill person dies (Métraux, 1967; Wright, 1997). Sometimes, the illness is related to "natural" conditions (e.g., a cold, the flu, or a cough) or to visible causes (e.g., a cut or a wound). These problems do not need the immediate consultation of a shaman. However, if they persist, they are attributed to the actions of shamans, non-human beings, or sorcerers regardless of their initial empirical cause.

When the traditional therapy fails to restore health, the person or his/her relatives may resort to Western medicine physicians or to collective prayer at their local Evangelic church. The general scheme of consultation consists in alternating between the shamanic, evangelic, and biomedical therapy. Physicians often complain about the delay in presenting the sick person to the health center or hospital, with the consequent advancement of the illness. They also consider that visits to the "curandero" or to the shaman are obstacles to the biomedical treatment. Toba people see illnesses as the result of an intentional damaging action of human and non-human origin. Their view rests on a perception of a person in relation to others (humans and nonhumans) and of the body as an entity that is permeable to symbolic actions. In contrast, the physiological and anatomical knowledge on which occidental medicine is based consecrates the material body and the subject's autonomy. These differences in the representations of illness and the body often cause confrontations between the shamanic and biomedical therapies and produce a constant conflict of interpretations and representations for the present-day Toba.

Sexuality and Reproduction

The concept of sex and sexuality among the Toba cannot be dissociated from more general social rules and beliefs such as pre- and post-partum taboos, the social consequences of violating restrictions, the importance of the gestational process on the infant's health, and the ideas concerning family responsibility. After their first menstruation, girls had to submit to a ritual of initiation after which they waited some years before starting a family of their own. This waiting period did not mean sexual abstinence, but rather a time without childbearing responsibilities. Sexual freedom was, and still is, the hallmark of this period (Karsten, 1932; Métraux, 1946). In the past, adolescents who became pregnant without having a stable partner resorted to abortion and infanticide. Since these practices cannot be carried out nowadays, it is common to find a very high number of young unmarried mothers.

Gestation is considered a gradual process in which, through successive semen depositions into the woman's body, the couple begins to engender a new offspring (Karsten, 1932; Métraux, 1946). In order to start a pregnancy, the woman has to receive a *baby spirit* from nonhuman beings (nowadays summarized by the image of God). During the first 4 months of pregnancy, the fetus is formed by the union of sperm and intrauterine menstrual blood. In fact, the same menstrual blood that was not discarded (because menstruation was interrupted by conception) contributes to the fetus's formation in the womb (Idoyaga Molina, 1976/77; Métraux, 1937; Tola, 1999, 2001). This representation of conception and gestation illustrates the idea of reproduction as a process requiring the participation of both parents. This model also emphasizes that conception is only possible through the intervention of a nonhuman element, the presence of the *baby spirit*. The absence of this spirit is one of the causes of infertility, considered to be mainly the woman's fault.

Health through the Life Cycle

Pregnancy and Birth

Records from pre-natal visits to local health centers indicate few pregnancy complications. The most frequently recorded pathologies are pre-eclampsia, eclampsia, and severe anemia, although no quantitative analysis of these problems has been undertaken. An analysis of weight gain during pregnancy in one Toba community indicated an adequate weight gain (mean = 9.9 ± 4.0 kg, range = 5.0–27.2 kg) (Valeggia & Ellison, n.d.).

The majority of births (72–95%, depending on the community) occur in hospitals. Official statistics indicate that in the most remote areas this percentage decreases to about 54% (Programa NacyDef, 2000). However, there are rural communities where all births take place at home with the assistance of experienced midwifes. Post-natal records indicate that the incidence of pre-term births among Toba women is as high as among non-indigenous women in the area.

Information about changes in fertility patterns among Toba people is extremely scarce. A survey of reproductive histories of peri-urban Toba women indicated that age at first birth has been declining steadily during the last few decades (Valeggia & Ellison, n.d.). The mean age at first birth declined from 21.5 (±4.5) years for women born in the 1930s and 1940s to 15.5 (±1.0) years for women born in the 1980s.

Abortion and infanticide were common (Karsten, 1967; Vitar, 1999). Abortion was more frequently practiced among unmarried or widowed women, and was provoked by mechanical means, that is, by striking the abdomen until the miscarriage occurred (Karsten, 1967). Since abortion is illegal in Argentina, the incidence of this practice at present is difficult to assess. However, hospitalizations due to incomplete abortions are among the most frequent reason for hospitalization, mainly among women 25–34 years of age (Departamento de Información y Estadísticas, 1999). Women also drink herbal teas that are said to "make a delayed menstruation come right away." The effectiveness of these herbs is unknown. Infanticide was practiced when infants were small, weak, or had an obvious birth defect. The second infant of a twin birth was also put to death, alleging evil intervention. At present, since most Toba follow a Christian religion for which infanticide is interdicted, direct infanticide is virtually unheard of. Yet, as in other societies, some child neglect cases that eventually lead to child death are suspected to be covert forms of infanticide (Gelles & Lancaster, 1987).

Interestingly, interbirth intervals, which now average 28 months (Valeggia & Ellison, 2001a), do not appear to be significantly shorter than those reported in early writings (Karsten, 1967; Monsalvo, 1972, unpublished manuscript). The Toba respect a postpartum sexual taboo by which couples do not engage in sexual intercourse until the child is able to walk by him/herself, which occurs around the 13–18 month postpartum (Tola, 2000). Given that they have, on average, 10 months of postpartum amenorrhea (Valeggia & Ellison, 2001a), this taboo may represent a social mechanism to space births.

Infancy

Birth weight is within normal ranges both in urban and rural villages. A study of infant growth found that only 3% of infants born in a peri-urban village weighed less than 2,500 g, while 85% weighed between 2,500 and 4,000 g and 12% weighed more than 4,000 g (Valeggia & Ellison, n.d.). The mean birth weight for this population was 3,380 ± 498 g (range 2,025–4,400 g). A summary of vital statistics for the year 2000 showed that in the more rural communities, 8% of infants were born weighing less that 2,500 g, 80% were born between 2,500 and 4,000 g, and 12% weighed more than 4,000 g at birth (Programa NacyDef, 2000).

There are no gender preferences among the Toba and both girls and boys receive much attention during their first year of life. The growth of infants is very good during the first year of life. In fact, the mean weight-for-age falls above two reference curves until 11 months of age, showing a peak around 4 months (Faulkner, Valeggia, & Ellison, 2000; Valeggia, Faulkner, & Ellison, 2001). Growth slows down progressively during the second year.

All infants are breastfed from birth until 2–3 years of age or until the mother becomes pregnant again. Breastfeeding can be defined as "on demand." On average, babies are put to the breast three to four times per hour, even during their second year (Valeggia & Ellison, 2001a). Supplements to breast milk are introduced around the fifth month of life and typically consist of broths, noodles, and rice. In urban settings, formula feeding is starting to replace semi-solid food as the first supplement of choice. The mother is the principal caretaker during infancy (Cohn, Valeggia, & Ellison, 2001). On occasions and for brief periods, the father and older siblings can act as surrogates.

Infant mortality during the first year of life varies from 18.6 per 1,000 in peri-urban villages to 61.8 per 1,000 in rural communities (Programa NacyDef, 2000; Torres, Cabutti, & Palatnik, 1973). The most commonly cited causes of infant death in peri-urban settings are upper-respiratory infections and gastrointestinal infections (diarrhea and dehydration). In more isolated areas, peri-natal deaths appear to be the main cause of infant death (Costanzó et al., 2001).

Childhood

The Toba do not have set ceremonies to mark the beginning and end of childhood. Once children are weaned they are considered to be independent and they are no longer in permanent physical contact with the mother. Girls begin to perform some light household chores and child caretaking when they are 3 years old. However, most helping activities are performed when the girl is between 7 and 15 years old. Girls' helping behavior includes involvement in domestic work (e.g., cooking, cleaning, tending the fire, washing), economic work (e.g., weaving baskets, selling handicrafts), or child caretaking. Young boys are not expected to help, neither in household chores nor in childcare (Bove, Valeggia, & Ellison, 2002).

Toba parents have a very permissive attitude toward children. Children are seldom reprimanded or scolded and are encouraged to learn through experience. As soon as they start walking confidently, they join mixed-age peer groups. Play is unsupervised and children usually play at different locations within the village.

Early childhood (1–3 years old) is the life stage in which Toba children are most vulnerable to problems of malnutrition. A survey carried out by a pediatric hospital in the province of Santa Fe indicated a worsening in the grade of malnutrition in Toba children in successive hospitalizations for other pathologies (Gomez, Morales, Aride, Balonchar, & Jofre, 1998). During the second year of life the mean weight-for-age declines and it falls significantly below the Argentine growth reference curves (Faulkner et al., 2000). According to Faulkner et al.'s study, a sharp increase in the percentage of malnourished children occurred around 15 months of age. The authors suggest that this dramatic weight loss may be due to a delay in introducing supplements coupled with the unavailability of appropriate, nutrient-rich weaning foods.

In 1994, the Department of Epidemiological Surveillance of the Province of Formosa evaluated the nutritional status of indigenous children in the province (Ranaivoarisoa & Ventura, 1998). Compared with non-indigenous children and with the national growth curves, Toba children 6–9 years old showed considerable growth faltering. Of the surveyed children, 11% were one standard deviation below the national average and 8.5% were two standard deviations below that average. The authors also pointed out that Toba children in rural communities were in better nutritional status than their urban counterparts, suggesting a better diet quality in rural settings.

In the year 2000, mortality rates for children 1–4 years old averaged between 9 per 1,000 and 50 per 1,000 between communities (Programa NacyDef, 2000). The main causes of death for rural communities were tuberculosis, other acute respiratory infections, and malnutrition (Costanzó et al., 2001). In peri-urban settings, early childhood deaths are associated with acute respiratory and gastrointestinal infections. Among the most frequent reasons for medical consultation in young children are acute diarrhea and gastroenteritis, upper respiratory infections, and skin infections, mainly pyoderma that results from scabies (Stevens, personal communication).

Adolescence

Adolescent girls start their reproductive lives at approximately 15 years of age. Vital statistics reports show high rates of adolescent pregnancy. In certain Formosan villages, as many as 44% of the Toba women giving birth in the year 2000 were 19 years old or younger (Programa NacyDef, 2000), 3% being younger than 15 years old. These rates were similar regardless of the location and mode of subsistence of the community. Usually, adolescent mothers and their infants remain in the maternal home until the second or third child. The custom of fostering away children born to young girls is fairly common, particularly in urban settings.

Adolescent prostitution is common in peri-urban and urban settings. As many as 20% of the adolescent girls participating in a reproductive history survey conducted in a peri-urban village indicated that they worked as prostitutes in a nearby truck stop (C. R. Valeggia, unpublished data). During this survey, these girls indicated that they seldom used condoms during their sexual encounters. Prostitution, although illegal in Argentina, is not stigmatized among the Toba and it is taken as a temporary job.

Health information on adolescent boys is very scarce. With the traditional customs of hunting and fishing severely curtailed, and integration into the non-indigenous society being difficult, many adolescents turn to alcohol. Alcoholism, in turn, leads to violent accidents and death. Violent deaths were, in fact, one of the main causes of adolescent mortality in the last few years in the province of Formosa (Departamento de Información y Estadísticas, 1999). In some villages, adolescents and young adult men find support in the Evangelic church where they participate actively in ceremonies. School

attendance is still very low among adolescent boys, although higher than that of girls. While girls are rapidly incorporated into the strong and supportive female network, boys tend to be left by themselves.

Adulthood

There are virtually no written reports of the health of adult Toba before to Spanish colonization. In general, they were described as strong, robust people. Early writings from physical anthropologists noted that the Toba, together with the Patagonian Indians, were among the tallest South American Indians, with average height around 169 cm for men and 156 cm for women (Lehmann-Nitsche, 1908; Paulotti, 1948). Interestingly, current adult height is not significantly different from these figures.

At present, very few hospitals discriminate health reports based on ethnicity. The data presented here were obtained from districts in which the indigenous population represents the majority of people (Departamento de Información y Estadísticas, 1999). Still, the data should be regarded as tentative.

Tuberculosis is widespread among Toba adults, particularly those living in more isolated communities. The incidence of Chagas' disease increases east to west in the Gran Chaco, favored by the dryer climate and the prevalence of traditional mud and palm huts in rural areas. Among the urban Toba, the main morbidity causes include hypertension, urinary infections (mainly women), gall bladder calculi, and gastrointestinal infections. As many as 80% of adult members of a rural community in the province of Chaco presented with pterygium and hypervascularization of the ocular conjunctiva (Torres et al., 1973).

Although the incidence of gonorrhea is known to be high among Chaco indigenous groups, other sexually transmitted diseases are dramatically underreported. In a survey conducted in 1998, 75% of the adult women in a Toba community of Formosa reported current or past symptoms of vaginitis and other urogenital infections (C. R. Valeggia, unpublished data). Records from city hospitals in Formosa and Chaco show a very low incidence of HIV infection among Gran Chaco indigenous people (Cravero, personal communication), but HIV tests are not performed routinely and underreporting might be significant.

The Aged

Aged people had an important role in Toba society in the past. They were the ones teaching traditions to the young and all important community decisions, including marriages, had to be approved by a council of elders. Postreproductive Toba women also contributed considerably to the community economy, carrying most of the burden of forest gathering. Today, changes in lifestyle are also accompanied by a change in the role of elders in the community. It is a common complaint of old people that the young no longer respect them and that that is the cause of a gradual loss of their ethnic identity.

It is difficult to accurately assess the age of older Toba people. Even though most have identification documents, these are not reliable sources of dates of birth. In any event, demographic data from some villages show a dramatic drop after age 55 for both men and women. The main cause of hospitalization for older Toba is pneumonia and other respiratory infections. Mortality records from the Formosan Ministry of Human Development indicated that the main causes of mortality among older Toba adults are tuberculosis, pneumonia, and various types of tumors.

Dying and Death

The Toba do not consider illness and death as natural processes of the living organism, but rather they are thought to be related to an intentional action of another human being or of some nonhuman entity. These actions cause a degeneration of the body that leads to death if they are not countered by the therapeutic methods of shamans and healers (see above). At a corporal level, death is produced when the image-soul of the person (*lki'i*) definitively leaves the body. After this moment and during a variable period of time (from 1 month to several years), the *lki'i* remains on earth near the person's family and his/her body. During the first month after the death of a relative some rules and restrictions must be respected to avoid the spirit of the dead person appearing in dreams or during incursions to the forest. This spirit might attempt to take away the spirit of a member of his/her family. For this reason, when a person dies, the closest relatives often appear oblivious to the death of the person. The dead person's belongings are buried or burned after the burial and the house in which he or she died is destroyed. Moreover, relatives avoid even talking about the dead, to pronounce his or her name, and to cry for them. These

attitudes or actions are observed by the spirit of the dead who—even if they are physically dead—have the power of deciding and acting in relation to the existence of the living persons.

CHANGING HEALTH PATTERNS

The Toba are undergoing a rapid nutritional transition from a hyperproteic diet to a hypercaloric one. Entire communities who used to rely on foraging or home-based cultivation are now depending on the processed foods available in city stores. Their diets are based on what is relatively inexpensive, such as processed sugars, starches, and fat. In addition, these changes occur together with an increased sedentary lifestyle. This pattern has become increasingly common in all Latin America (Peña & Bacallao, 1997; Uauy, Albala, & Kain, 2001).

A serious consequence of these lifestyle changes is an increase in the rate of obesity in urban and peri-urban communities. Forty percent of the adult women in a peri-urban setting were overweight or obese (Body Mass Index >26 kg/m^2) in 1998–99 (Valeggia & Ellison, 2001b). Although there is no systematic data on changes in incidence of cardiovascular disease or diabetes in this population, hypertension, and gall bladder problems are ranked high within the 10 most cited reasons for doctor's appointments at local health centers and hospitals (Departamento de Información y Estadísticas, 1999). As is the case in many Native American groups in North America, the Gran Chaco Indians may be more sensitive to the metabolic derangement associated with obesity. The presence of obese adults and undernourished children in the same household represents a serious public health challenge that would require the review of nutrition intervention programs and a culturally sensitive health education plan (Valeggia & Ellison, 2001b).

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