SOCIAL SCIENCE AND HEALTH RESEARCH IN LATIN AMERICA

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Major developments in the understanding of the etiology, the care and the prevention of disease have occurred during the past quarter of a century. Neither in Latin America nor elsewhere in the world has the understanding of how best to deliver the fruits of these new developments to all of the people kept pace with the advances in medical technology.

Some of the greatest hindrances encountered in the operation of health programs in contemporary Latin America revolve around many of the problem areas that are also of concern to the social sciences. Three topics that have been studied by social scientists and physicians and that are relevant in an analysis of the findings of the Colombian National Health Survey are reviewed here. These are problems in which collaboration between the social and medical sciences will prove highly advantageous.

1. Economic development and demographic change.
2. Health manpower.
3. Communication and cultural differences.

ECONOMIC DEVELOPMENT AND DEMOGRAPHIC CHANGE

The demographic changes that most directly affect health in Latin America are the mass movement of peasants and townsmen to large urban centers, and the rapidly increasing numbers of people who live to reproductive and old age.[1] These demographic changes are related

to increasing industrialization in cities and the acquisition of new systems of communication and transportation. One reads a lot these days about whether the demonstrated effectiveness of major public health programs is not the cause of the population explosion. But the interdependence between population dynamics, health programs and economic development is more subtle and complex than a simple cause-and-effect argument assumes.

One of the demographic problems that has warranted and recently received serious attention is the movement of rural people to cities in the hope of improving their total life chances. These rural migrants emigrate from areas rarely exposed to the practice of orthodox western medicine. Orlando Fals Borda has commented that the cities are being converted into cultural extensions of the village due to the massive influx of rural people to urban centers.[2] With this in mind, he has urged that urban physicians should become acquainted with the expectations about health of these in-migrants. All rural-to-urban migrants are not equally rustic in their response to health problems. Studies of urban populations will indicate for health administrators the high priority targets for intensive and flexibly conceived health education and preventive health programs. The movement of rural people to large cities probably represents a permanent and irreversible exodus that is a consequence of many subtly interrelated social and economic factors. For example, the rate of urbanization in Venezuela is one of the highest in the world. Only a few investigations have focused on the dynamics of Venezuela's rapid urbanization, and nothing suggests that developments there are uniquely different from the generalizations presented earlier.[3] Yet, serious consideration must be given Arnoldo Gabaldon's contention that a major contributing factor to urbanization in his country was endemic malaria, which once plagued a large part of that nation's rural territory.[4]

Gabaldon also intimates that the remarkably successful campaign to eradicate malaria changed the ecological balance in those territories and has made it possible for the emigrants to return. The question is: Will they return from the cities to the countryside now that malaria is no longer a threat? Or, would the residents of the formerly diseased areas have left for industrializing cities whether or not malaria was a problem? A closely related question is, does the present threat of Chagas' disease in many parts of Venezuela and elsewhere weigh importantly in the decision of peasants to migrate to urban industrial centers? Will city dwellers return to those presently infected areas after

effective means are discovered to control and prevent Chagas' disease?

Whether epidemic and endemic disease conditions represent a sufficient cause for mass emigration to industrial cities is a matter for investigation and collaboration by medical and social scientists. The results of such research will bear important messages for economic and social planners as well as for those engaged in this kind of basic, interdisciplinary research.

As is the case elsewhere in the world, Latin Americans are not only congregating in large centers in unprecedented numbers, but they are also living longer. The increased life span of so many in the population has prompted intensive research on fertility, knowledge and practice of contraceptive methods and the epidemiology of abortion.[5] One of the most startling results of the study of provoked abortion in many Latin American countries is the very large number of married women who depend upon this technique to control births. The unsuspected widespread use of abortion along with the associated high maternal morbidity and mortality rates has led concerned practitioners and epidemiologists to characterize induced abortion as a major public health problem. Social class membership is closely related to health-relevant attitudes and behavior; those women who comprise the high-risk population are found in the working-class and lower-middle class sectors of the population rather than in either the lowest or the highest social class categories. As Mariano Requena has commented, in his study of abortion in Santiago:[5]

> Each social class level will show a preference for using a certain method of birth control. Those in the lowest socioeconomic levels preferring not to limit births; those in intermediate levels depending upon the provoked abortion, whereas those in the highest categories make use of sophisticated contraceptives. To the extent that a society undergoes socioeconomic development with consequent changes in the proportions of those who belong to the various class levels, so too will vary the proportion of those who are dependent on the resources listed above.

Requena's accounts and those of Armijo, Hall and others on induced abortion, clearly demonstrate how social and cultural background affect health problems and practices.[6] These studies also point to the fact that as social and economic development occurs it will be reflected in changing patterns of health behavior.

One of the better indices of a nation's social and economic development is the construction of new highways and railways, which increases communication between regions and decreases the provincialism of

patrias chicas. Several years ago the government of Bolivia embarked on the construction of a new highway designed to link the lowland provinces of North and South Yungas with the low-lying province of El Beni.[7] Until the advent of this highway, the Yungas were connected to the rest of Bolivia only by means of roads to neighboring highland provinces. The new highway does not bring with it unmixed blessings, as the Bolivian Ministry of Health so poignantly remarks. The reason is simple.

Yaws is so endemic in North and South Yungas that residents do not consider it a disease, and the few local physicians do not consider it worthy of comment in their reports to the Ministry of Health. Until recently, it has remained a quite limited problem, one characteristic of lowland Yungas, and prevented from spreading because the only roads out of the lowland regions led up to the nearby highlands.

The new highway between the twin Yungas provinces and low-lying El Beni raises the specter of yaws spreading to a previously unexposed population and becoming a major national public health problem.

Similarly, Jervis' recent ecological study of the distribution of plague in Ecuador, and his discovery that it is usually reported first in seaport towns and then spreads gradually to the interior by means of transportation, suggests that the greater the ease of access between seaports and interior towns and villages, the greater the danger to the public health.[8] The recent construction of a railroad to connect the province of Las Esmeraldas, which is economically dependent upon the port of Manabi, with the rest of Ecuador, raises the possibility that heretofore unexposed inland communities are now to be added to the population at risk from this dread disease. (In 1962 and 1963, when railroad operations began, 241 and 144 human cases of plague were reported from the Province of Manabi.)

Norman Whitten's anthropological study of the effects of the new railroad on social and economic life in Las Esmeraldas demonstrates that all sectors of the population are not equally influenced by the new transportation system.[9] A program of preventive health organized to minimize the risks of plague in the newly exposed region may well capitalize on Whitten's study, and accord high priority to those in the population whose occupational and social activities mark them as the most likely links between the seaport of Manabi and the interior.

That a close relationship obtains between economic and demographic change on the one hand, and the nature and severity of health problems on the other, is apparent. What is not at all clear is the character of the

relationship and the manner in which one phenomenon responds to and exercises influence on, the other. It is here that the challenge lies for both medical and social scientists.

HEALTH MANPOWER

The shortage of professional health personnel is more acute in some Latin American nations than in others, but all of these countries are gravely affected by this problem.[10] Reasons for the shortage of professional staff are related to the expectations held by members of different classes with respect to their life aspirations, with an increasing demand for health services, to patterns of recruitment into the professions and to the general values associated with specific occupations.

In Latin America, those who enter medical school are predominantly from the middle and upper strata of the population; most of the medical students have been born in metropolitan centers of large provincial cities.

Until the social and cultural factors that induce young physicians to settle and remain in the metropolitan centers are taken into account, no long-range solution to the maldistribution of doctors can be found. The extent of this problem is outlined in a report of the Pan American Health Organization, which describes the distribution of physicians in 1962.[11] Fifty-four per cent of all physicians live in large cities where only 21 per cent of the total population reside. In those areas where 79 per cent of the people are found, only 46 per cent of the physicians are practicing medicine. To make matters worse, in the large cities (as Joseph Lebret and Virginia de Pineda report for Colombia), physicians "congregate in the central or more wealthy neighborhoods and are absent in the lower- and working-class neighborhoods."[12]

Medical students are the products of what may be referred to as a "metropolitan subculture." Their socialization and professional training make them even more urbane in outlook and aspirations after graduation than before entering medical school. Medical students and physicians marry those who share their own cultural beliefs, women who aspire to live a way of life found only in the large cities. It is also of importance to a young physician to practice his profession in localities that provide him access to laboratories, high-quality hospitals and teaching institutions, and these too are powerful magnets that contribute to the concentration of physicians in the largest population centers.

The travail of seeking professional medical attention is of an extraordinary nature in many rural areas. These difficulties have been well described by Rogerio Velasquez in a trenchant analysis of the problems that confront residents of Colombia's South-Pacific region when they seek medical assistance. These inhabitants have to sail on open sea, or to travel between 12 and 60 hours by motor launch, to secure the medical attention they need.[13] The "Plan de Fomento Regional para El Chocó," gives some consideration to the need for water ambulances for these coastal dwellers.[14]

The overall shortage of physicians in Latin America, a shortage most acutely felt in rural areas, suggests that much of the burden of responsibility might well be assumed by another member of the professional health team, the graduate nurse. However, nurses are in even shorter supply and far less adequately distributed than are physicians.[15]

It is, of course, difficult to know all or even the most important factors that contribute to the severe shortage of professional nurses in Latin America, unless a serious study is undertaken. Some assume that professionally trained nurses are unavailable because they are paid poor salaries and because little social or professional prestige is accorded their status.[16] Also, relatively few women in Latin America attend secondary school, and those who do tend to be from the middle and upper classes.[17] The cultural mores that prescribe appropriate behavior for women in these classes do not apparently include nursing as a desirable career to pursue.

Two types of programs, designed to extend health services to the countryside, have developed in the face of severe shortages of physicians and nurses. The first program requires physicians and graduate nurses to spend from six months to one year in a rural practice. The second is the creative development by a number of national governments of auxiliary health staff who are trained to complement and supplement the services of professionals. If auxiliary personnel had not been introduced in the rural areas in many Latin American countries essential health services could not have been provided for the population.

One of the earliest attempts by a national government to oblige professional health personnel to practice in rural areas occurred in Mexico in 1936. The Faculties of Medicine of the Universidad Nacional Autonoma and the Escuela de Medicina Rural introduced a program requiring medical students to devote the final six months of their training to a rural practice.[18] A social science curriculum was also initiated to prepare students for a rural practice in which very often the patients

were of Indian culture. Once in the field, the student was obliged to engage in medical care, health and sanitary education and in the preparation of a descriptive thesis about the health, social and economic problems of the region. Aside from those immediate aims, one of the secondary goals to which the program aspired was to encourage the student-physician to remain in his practice in the rural areas after completion of his compulsory service.

Several of the theses by medical students have demonstrated that the inclusion of social science in their training has made the young physicians keen observers of important social and cultural factors that may contribute so much to the relative success or failure of a medical practice. Examples of their insight are found in the theses of the students, now physicians, Nicolás Heredia Acevedo and Celia Bonilla Dominguez.[19] Heredia related how symptoms were defined in the traditional medical system of Tzeltal and Tzotzil Indians, and Bonilla discussed traditional behavior expected of non-Indian peasant women during pre- and postpartum periods.

In 1964, Milton Roemer reported the results of a study of the Mexican *pasantes,* as those who perform compulsory medical service are known.[20] Only 5.8 per cent of the *pasantes* intended to remain in their rural practice after completion of obligatory periods of service. Although this program represents only a short-range solution to the health problems of rural communities in Mexico, it has made a considerable contribution to the health of rural dwellers in the absence of other facilities.

Since the Mexican experiment with *pasantes* began, several other nations have initiated similar efforts. None of these programs have been subjected to the kind of evaluation that would assist health planners and educators to improve the preparation of students for problems they will face as rural medical practitioners. Nor has a carefully designed investigation been carried out of the impact these young doctors have made on traditional health practices in rural Latin America. Impressionistic but thought-provoking discussions by Virginia de Pineda and Branko Kessic have dealt with the career problems of young physicians.[21]

The shortage and maldistribution of professionally trained staff has led to a number of creative efforts to utilize relatively untrained auxiliaries to assist health professionals. One of the oldest, most widespread and least heralded of such efforts is the use of religious sisters to help meet nursing needs. In a survey of the performance of nursing duties

by religious sisters in Perú, Sister Jeanne Teresa reported that, in 1964, 280 religious sisters were performing nursing duties of which less than half (45.6 per cent) were graduate nurses, less than ten per cent were certified as either nurse's aide or practical nurse and approximately one quarter had no formal health training.[22] In Perú, with only 3.1 nurses and 5.1 nurse auxiliaries per 10,000 residents, the activities of these 280 religious sisters in nursing service represents a significant contribution to the health needs of the nation.

Another widespread effort to augment available health services is represented by procedures in which residents of villages and small towns are selected and trained to carry out such responsibilities as first aid, midwifery, health and sanitary education, registering births and deaths, reporting communicable diseases and administering innoculations.[23] These paramedical personnel are then returned to their villages where they often may function as the only available practitioners.

Communication and Cultural Differences

Aside from providing health care where none is otherwise available, the medical auxiliaries serve as cultural "brokers" between the health professionals and those requiring health services. The need for such cultural brokers is of paramount importance in dual societies, in those nations or regions where two or more cultural traditions thrive and where those who provide medical care may be of a different cultural tradition from their patients.

One of the oldest and perhaps most dramatic efforts to recruit and train Indian *promotores sanitarios* is found in Mexico in areas in which indigenous populations are serviced by a Centro Coordinador Regional of the Instituto Nacional Indigenista.[24] A *promotor sanitario* is a member of an Indian community who has shown some considerable motivation to become closely identified with Mexican national culture. Each individual selected for training is brought from his village and entered in a boarding school in the Coordination Center that serves the needs of those who speak his language. The recruit is taught Spanish and basic techniques of first aid as well as some routine medical techniques. He is also instructed in fundamental public health principles of sanitary and environmental hygiene, which are adapted to the needs and the resources of his people. Upon completion of his training the recruit returns to his village to carry out his new responsibilities.

The Mexican program with *promotores sanitarios* is typical of most

of the Latin American national programs that use rural paramedical assistants. Although not everyone agrees on the need for such members of the health team, it is generally conceded that they are helpful in meeting the needs of the populations they serve. The few evaluatory studies that support these impressions attest to the advantages gained by the communities receiving these services.

With the exception of Wellin's investigation of villagers selected to serve as birth registrars in the Department of Ica in Perú, apparently no evaluation has been made of how such paramedical staff members are selected, why some fail and others succeed or how effectively a recruit works in his community.[25] Wellin discovered, when comparing the characteristics of two villagers who had been appointed birth registrars by the Sanitary Service of the Department of Ica, that "the curious fact emerged that the person with less education, less technical proficiency and less understanding of the nature and objectives of the program is the more successful registrar."[26] He concluded that the success of one registrar and the failure of the other was not related to the tasks in which they had been engaged. The successful registrar used his new responsibilities to help him build the intravillage relationships he had previously been seeking. The less successful registrar was interested in building social relationships with city dwellers rather than with his fellow villagers. Consequently, his new duties were accepted out of a sense of civic duty rather than because they helped him to attain personally important goals.

To return to the Mexican indigenous promoters, a former *pasante,* Nicolas Heredia, has commented in his evaluatory study of medical services provided by the Centro Coordinador Tzeltal-Tzotzil that:[27]

> The sanitary promoters' role is so important, that years of experience in the Center . . . taught that without them the health program . . . would have failed.

Despite such a glowing evaluation of the contribution of the auxiliaries, ambivalence of their status in their villages may create substantial problems. Some of the recruits are unable to resolve their identity problems; others find village and hamlet life intolerable after having enjoyed the more intellectually stimulating life of the boarding school and the glamour of the provincial center in which the school is located.

Although the needs are similar, efforts to introduce brokers into situations in which physician and patient are of the same national culture, but participate at different social class—or subcultural—levels

have been slower to develop. Yet the recent studies by Iutaka in Rio, and Stein and Otting in Perú, of the effects of social class differences on perception of illness and the consequences of those differences, clearly demonstrate that in Latin America, as elsewhere, social class differences influence health behavior and require understanding by both medical practitioner and planner.[28] Efforts to introduce brokers into these kinds of situations are found in Colombia in the form of *promotores de salud,* and in Venezuela's more extensive program of *medicina simplificada.*[29]

Medicina simplificada is most dramatically used in Venezuela's national campaign against tuberculosis. The term refers to the incorporation of rural health auxiliaries who represent national health services in the most inaccessible villages. To use these staff members most effectively Venezuela's health services were rearranged into four networks, each of which in turn comprised less skilled personnel and reached into areas more remote from the national capital. The auxiliaries who compose the fourth network are stationed in villages in which they provide the first line of defense against tuberculosis, parisitosis and the other illnesses so commonly found in these communities. The paramedical staff is, in turn, dependent upon more highly trained personnel who compose the third network and are located in more accessible villages. Assistance for the third network is provided by still more qualified staff in larger and less remote settlements, and these in turn are in constant communication with the physicians of the first network who are found in the large cities. The value of the presence of auxiliary staff members in the fourth network is that they not only identify villagers in need of medical care, but also insure that the patient complies with the regimen of healing prescribed.

The use of auxiliary personnel to augment available medical services in rural and urban areas of Latin America, and to serve as bridges between the culture of the professional and that of his patients, is a creative and increasingly widely accepted response to current health problems in the region. The relative usefulness of such programs can only be enhanced by carefully designed evaluations, carried out quite independently of the agency responsible for the health program. It is essential to discover those factors that encourage and those that discourage the effective functioning of paramedical staff, and it is equally important that the results of those evaluations be shared by the respective nations, each of which is involved in efforts to solve essentially similar health problems.

CONCLUSION

The rewards for those who engage in this kind of research promise to be most satisfying, and for those whose mandate is the care and protection of their people's health, the collaborative efforts proposed in this presentation promise to be provocative, interesting and of great practical value. The efficient delivery of medical care and prevention programs to all sectors of Latin America is dependent on an increasingly close collaborative relationship between physicians, planners and social scientists.

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