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Urban Nutrition in the Tropics:

A Neglected Subject of Scientific Inquiry

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Summary

The trend in investigation of nutrition in the tropical world has been toward a concentration on rural populations, and the problems of tribal and peasant groups. A combination of various factors probably explains the neglect by the nutrition community of the city including the entrenched habit of thinking about and working with rural populations, and the logistical and social-relations problems perceived in connection with urban groups. Of course, with a focus on the city, not only the undernutrition of the poor but also the excessive and imbalanced consumption patterns of the wealthy are to be considered. The demographic patterns in much of the Third World reflect a dramatic shift to metropolitan areas. It is doubtful that the nutritional lessons learned in the rural areas will be transferable to the urban setting. Thus, a new investment in research of the city, focusing on the nutritional issues of the poor, middle-class and rich, the long-term resident and the recent migrant, will have to be undertaken.

Directions in Scientific Inquiry

In one sense, one could define science as the process of replacing ignorance with knowledge. Knowledge represents the key to understanding natural phenomena. Understanding provides the capacity to make accurate descriptions of or predictions about the behavior of something, be it of a cell or of a population. When one evokes the scientific method, one is implicitly expressing the goal of improving knowledge about the subject of inquiry. A perfectly legitimate justification for bringing one or another subject under scientific scrutiny is simply the curiosity of the investigator. Also relevant, however, are issues such as how extensively the subject has been previously studied. How much knowledge remains to be gained with the technology for research available at any given point in time? These are practical considerations, relating to how valuable or applicable will be the knowledge derived for "solving problems." Thus, the interplay of personal curiosity, the degree of outstanding ignorance, and the potential applicability of the findings often govern the direction and style of science.

In the areas of the nutritional sciences that deal with feeding habits or nutritional status at the population or community level in developing countries, the aforementioned considerations have important implications for the choices made in the conduct of scientific investigation. Nutritionists have endeavored to push back the perimeter of ignorance and to provide new insights. The context most often has been in rural populations, with the implicit hope that the nutritional problems of the traditionally poorest sector of a nation - the agrarian peasant or tribal societies - could be alleviated by programs based on the knowledge acquired in nutritional investigation. It can safely be said that nutritional activities and nutritional knowledge about populations of the Third World has a rural flavor.

Poverty, the plight of most rural inhabitants, is clearly a predominant causal factor in undernutrition. Reduced consumption of macro- and micronutrients secondary to low power for acquisition combines with the environmental onslaught from inadequate sanitation to rob the residents of their nutritional reserves. On the other hand, affluence also has important implications for human nutrition. Overconsumption of calories relative to one's energy output with the sedentary life-style of the well-to-do can lead to obesity and a higher risk of adverse consequences (Beaton, 1983). Moreover, with increased monetary wealth, individuals change their food-consumption pattern including more separated oils and fats, more animal products, saturated fats and cholesterol, and more refined carbohydrates in their diets. This pattern also has its implications for health (Uauy et al., 1984). In cities and metropolitan areas, finally, one finds a cross-section of society, with poor, middle-class and wealthy co-existing in some sort of geographical and social continuity.

Urban Nutrition in the Tropics

Recently, it has been realized in several quarters that the urban segments of populations in tropical countries have been historically neglected. It is projected that by the year 2000, 80 % of Latin America will reside in urban or periurban areas, and the demographic pattern in the poor nations of Asia, Africa and Oceania are moving toward urbanization at a velocity only slightly more moderate. In 1981, the organizers of the V Western Hemisphere Nutrition Congress invited a paper entitled: "Food and nutrition problems in urbanized Latin America: Misdirected development" (Uauy et al., 1984). Another invited speaker treated the same theme, but as related to Latin American rural poor (Valverde et al., 1984); their respective analyses suggested that issues of nutrition in the metropolitan regions of that hemisphere are distinct from those of the rural segments of the population.

Intrinsic Contrasts of Urban and Rural Life

As noted, rural aspects of nutrition have been the major focus of concern historically. The basis for a suspicion that the same principles and realities emerging from the rural experience might not be applicable in the urban setting emerges from the obvious differences between the surroundings and the societies in urban cities and in rural villages. Table 1 provides a list of contrasting characteristics of urban and rural life. This list is extensive, but by no means comprehensive. None of the differential features listed necessarily explains differences in nutritional conditions between city and countryside. It does, however, provide a framework for discussion and inquiry. The litany of contrasts in Table 1 makes more compelling the notion that nutritional patterns differ between metropolitan and rural communities.

A Pattern of Neglect of the Tropical City by Nutritionists

Cecily Williams described kwashiorkor in the children of the Ga tribe in Ghana (Williams, 1939). Since that time, the major thrust of international nutrition has been in preindustrialized, developing nations in the tropics. Guatemala in Central America, by virtue of the labors of the Institute of Nutrition of Central America and Panama (INCAP) during the last 36 years, has been the scene of nutritional studies and nutritional programs throughout the post-war era. It is perhaps in Guatemala that the paradigm of rural nutrition reached its pinnacle, with the four western village study (Scrimshaw et al., 1969), four eastern village project (Yarbrough et al., 1975), and the longitudinal study of growth and development in a rural highland village published by Leonardo Mata in his book, "The Children of Santa María Cauqué" (Mata, 1978a). In its series of English-language publications from 1949 to 1985, INCAP listed 1324 citations. Of these 272 (20.5 %) related to population studies. Of these, 35 (2.6 % of the total) relate to urban communities (usually in a contrasting fashion to some rural groups), and only three papers (0.2 %) in the whole

series (Mendez et al., 1959; Mata et al., 1966; Moore et al., 1981) are exclusively related to nutrition in the city per se.

Of course, Guatemala is an agricultural country, steeped in the post-Mayan indigenous culture. Other Latin countries with a well-developed nutrition sector - Costa Rica (Mata et al., 1978b), Chile (Cruzat et al., 1982) and Mexico (Sequiera, 1984) - have participated more actively in the study and development of nutrition in the cities.

The Indian subcontinent of Asia represents a densely populated area. It too is largely agrarian, but contains large cities such as Lahore, Karachi, New Delhi, Bombay, Calcutta, Dacca and Colombo. Health, alimentation and nutrition are problematic in this region. Again, although much nutritional investigation has been conducted in urban settings in India (Udani, 1963; Gupta et al., 1973; Rathore et al., 1975; Gupta et al., 1978a, 1978b; Prakash et al., 1979; Ghosh et al., 1974), as reviewed by Gupta et al (1978b), the balance of inquiry has been focused and concentrated on rural populations.

In fact, in the recently published "Urbanization and Nutrition in the Third World," Schürch and Favre (1985) compile an annotated bibliography containing 115 relevant citations on the topic published between 1965 and 1984.

Reasons for Traditional Neglect of the Urban Setting by Nutritionists in the Tropics

The reasons why nutritionists have traditionally neglected the urban populations of developing countries in preference to the rural groups has not been the subject of scientific scrutiny. For the purpose of the present discussion, and accepting the premise (above) that there has been neglect of urban nutritional matters, we shall discuss a series of potential contributing reasons to the pattern of neglect of the city by nutritionists working in

developing countries. A framework for this discussion is provided in Table 2.

The primary reason for the predominant focus on rural nutrition could simply be inertia. That is, the tradition that arose out of the discovery of kwashiorkor in a tribal setting may have been continued on its own momentum. A variant on this motivation would be a basis in fashion. It has been in vogue for professionals to gain their international nutrition reputations with investigations relating to rural populations. As one's mentors and predecessors had "earned their wings" in the field in the countryside, emerging nutritionists felt obligated to do the same.

Romance may have also entered the equation of factors dictating the emphases of nutritional pursuits. As in anthropology, for instance, - which sees a life-style of working with remote rural cultures as a norm - nutritionists may have developed a similar romantic notion about the appropriate format for working in the Third World.

The greater poverty experienced by rural dwellers may have had a dual impact on the direction of nutritional activities in developing countries. It justified the notion that malnutrition would more likely be a problem in the countryside. It also may have inspired a spirit of advocacy in humanitarianly motivated professionals who saw the rural poor in need of advocates. It has been the implicit assumption of many that the solution of poverty will resolve the bulk of undernutrition problems, and that improving nutrition will contribute to the decline in poverty.

The nature of political power formation in developing countries could be yet another factor in the neglect of the urban setting by nutritionists. They may in fact have been subtly or overtly encouraged by the authorities to restrict their activities to more remote areas - remote from the capital and municipalities where the elevation of expectations wrought by interest in the

health and the nutrition of the professionals would not be so easily translated into rising demands for increased services. The dispersion and generally poorer political organization of the "invisible" poor of the countryside allow central authorities to take less seriously the demands and petitions of this sector.

Finally, the relative ease of study of rural populations, compared to urban groups may have been a factor. Whether myth or reality, the perception is widespread that the physical safety of a middle-class professional is greater with the "docile, friendly" villagers in the countryside than confronting the "aggressive, criminal" slum-dwellers of the cities. Moreover, the less cosmopolitan and less sophisticated world-view of the country cousins seemed to ensure a higher rate of compliance with the proposed study. On a practical basis, the mobility of the urban citizens within the city confounds studies based on longitudinal follow-up of a cohort; it is far more feasible to do the kind of 14-year prospective study such as that published by Mata (1978a) in the confines of a stable highland hamlet like Santa María Cauqué.

The City as City - or - The City as Laboratory

As illustrated, although relatively neglected by the interests of the nutritional community, the cities of developing nations have not been entirely abandoned. Activities in nutritional investigation have been conducted in cities as the experience in India, for example, will attest and has been documented more generally in the anthology by Schürch and Favre (1985). However, it is important to identify two motivations for undertaking nutritional inquiries in urban communities. The first is to look at the city as an "organism," making its idiosyncracies and needs the paramount stimulus to the investigation with the implicit goal of gaining new knowledge that will improve our understanding of and ability to deal with the nutritional problems inherent to urban communities. This is reflected as the animus for some of the mentioned Indian literature.

The alternative motivation, which also brings one into contact with urban nutrition, is to use the city as a laboratory for understanding issues of nutritional biology. A longitudinal study of the relationship of nutrition to behavior, cognitive performance and health was conducted in Bogota, Colombia (Waber et al., 1981; Mora et al., 1981). A similar study has been undertaken in Cali, Colombia (McKay et al., 1978). A project with parallel goals, moreover, was the basis of the eastern four-village study at INCAP in Guatemala (Yarbrough et al., 1975). Clearly, each team of investigators sought the population and the setting most accessible and convenient for developing a study to look at the biological inter-relationships between nutrition and mental performance. In Guatemala, this led to the choice of four rural communities; in Colombia it led to urban or periurban slum-dwellers.

As individuals migrate from the countryside to the cities, it would be expected that they make some form of transition from the traditional rural staples to a modern, diversified diet. This can be a slow or long process for a given family depending on the strength of cultural practices and the availability in the city of the traditional foods. The implications for health, and for the unanswered questions about relationships between dietary substances, eating habits and diseases such as cardiovascular degeneration, hypertension, and cancer, in populations in dietary transition are obvious. Now that both the epidemiological and the analytical tools are refined for pursuing this kind of inquiry with new precision (Willet and MacMahon, 1984), an obvious opportunity for scientific inquiry is to use the transition of cuisine in newly migrated populations studied over time to answer questions about nutritional bases of chronic disease.

New Directions for Nutritional Endeavors in the Tropics

It is important that the nutrition community does not abandon its traditional interest in the problems of the rural areas; it is generally true that the countryside will contain the worse

nutritional conditions as it harbors the poorest of the poor (Valverde et al., 1980). It is equally important, however, that the nutrition community begins to address the issues of nutrition in the cities of developing countries. It is still an unanswered question whether or not profound and dramatic differences either in biological principles or in descriptive realities exist. Only empirical comparative data can inform us of the degree of any such differences, and whether they are only quantitative or truly qualitative. So the first step is to mount some prospective evaluations of nutrition and feeding issues in major cities.

In both substance and style, approaches to gaining access to and establishing rapport with the members of an urban slum, such as a favela on the hillsides of Rio de Janeiro, will differ from those applicable to a highland village on the side of a Central American volcano. Various professions that have traditionally worked in the urban setting - urban sociologists, city planners, etc. - need to be consulted by the nutrition community to share their guidance, advice, wisdom and experience. Indeed, the list of comparative differences in Table 1 may be related as importantly to the practices for studying and serving the different communities - rural and urban - as it serves the formation of scientific hypotheses.

Finally, the nutritionist will also need to be prepared to see his or her own reflection in studies conducted in cities. Middle-class and well-to-do populations are an inherent reality in cities. The unique appeal of advocacy for the poor will not sustain research in tropical cities. Urban researchers must be capable of embracing and addressing the nutritional and dietary issues implicit in affluence and overconsumption as well as those of poverty and deprivation.

The field is in its infancy. In fact the recognition of a potential new and novel paradigm based on the evolution of nutritional status in the urban environments of tropical nations

Table 1 .

Rural/Urban Contrasts

	Urban	Rural
Population Density	high	low
Occupational Pursuits	diverse	agricultural
Political Visibility	high	low
Economic Status	dependent on employment state	dependent on weather, prices
Social Mobility	possible	difficult
Social Class Distribution	balanced	many peasants, few landlords
Transportation	organized transit system	hitch-hike; beast of burden
Density of Automobiles	high	low
Environmental Pollution	industrial; automotive	pesticide; herbicide
Premium on Literacy	high	low
Reliance on Processed and Stabilized Foodstuffs	high	low
Participation in Monetary Economy	high	low

is also an infant. It is my hope that the contents of this compendium will provide the appropriate stimulation, not to assess the state of our knowledge, but the state of our ignorance, and foster a "new wave" of nutritional inquiry in the Third World. It is also important that diverse experiences from all parts of the globe be enrolled in the pursuit of new knowledge about tropical urban nutrition. This monograph addresses only dispersed segments. An ever broader coverage and interlinking of experiences between and among regions will be necessary to promote the most rapid and most incisive penetration to a comprehensive understanding.

Table 2 Possible Reasons for the Traditional Neglect of the Urban Setting by Nutritionists in the Tropics

	Inertia
	Fashion
	Romance
Greater	Poverty in Rural Areas
	Political Power in the Urban Areas
Ease of	Study in the Rural Areas

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