#### REFERENCES CITED

Callahan, Edward J., Joseph Pederson, and Juan L. Granados. 1989. Adherence to Prescribed Iron Pills in Pregnancy: A Preliminary Study. The Journal of Compliance in Health Care 4(2):135–144.

Caplan, Pat 1997. African Voices, African Lives: Personal Narratives from a Swahili Village. London and New York: Routledge. Eddleston, Michael, and Stephen Peirini 1999. Oxford Handbook of Tropical Medicine. Oxford: Oxford University Press.

Ekstrom, Eva-Charlotte, F. P. Kavishe, J. P. Habicht, E. A. Frongillo, K. M. Rasmussen, and L. Hemed 1996. Adherence to Iron Supplementation During Pregnancy in Tanzania: Determinants and Hematologic Consequences. American Journal of Clinical Nutrition 64:368–374.

Galloway, Rae, Erin Dusch, Leslie Elder, Endang Achadi, Ruben Grajeda, Elena Hurtado, Mike Favin, Suhubhada Kanani, Julie Marsaban, Nicolas Meda, K. Mona Moore, Linda Morison, Neena Raina, Jolly Rajaratnam, Javier Rodriguez, and Chitra Stephen 2002. Women's Perceptions of Iron Deficiency and Anemia Prevention and Control in Eight Developing Countries. Social Science and Medicine 55:529–544.

Galloway, Rae, and Judith McGuire 1994. Determinants of Compliance with Iron Supplementation: Supplies, Side Effects, or Psychology? Social Science and Medicine 39(3):381–390.

Geissler, P. W., R. J. Prince, M. Levene, C. Poda, S. E. Beckerleg, W. Mutemi, and C. E. Shulman 1999 Perceptions of Soil-Eating and Anaemia among Pregnant Women on the Kenyan Coast. Social Science & Medicine 48(8):1069–1079.

Good, Byron J, and M.-J. Good 1992 The Comparative Study of Greco-Islamic Medicine: The Integration of Medical Knowledge into Local Symbolic Contexts. *In* Paths to Asian Medical Knowledge. C. Leslie and A. Young, eds. Pp. 257–271. Berkeley: University of California Press.

Gutelius, M. F., F. K. Millican, E. M. Layman, G. J. Cohen, and C. C. Dublin 1962 Nutritional Studies of Children with Pica. Pediatrics 29:1018–1023.

Johnson, Frederick 1997 [1939] A Standard Swahili-English Dictionary. Nairobi: Oxford University Press.

Kielman, Karina 1998 Barren Ground: Contesting Identities of Infertile Women in Pemba, Tanzania. *In* Pragmatic Women and Body Politics. M. Lock and P. Kaufert, eds. Cambridge: Cambridge University Press,

Larsen, Kjersti 1998 Morality and the Rejection of Spirits. A Zanzibari Case. Social Anthropology 6(1):61–75.

Levin, H., E. Pollitt, Rae Galloway, and Judith McGuire. 1993. Micronutrient Deficiency Disorders. *In* Disease Control Priorities in Developing Countries. D. Jamison, H. Mosley, A. Measham, and J.L. Bobadilla, eds. New York: Oxford University Press for the World Bank.

Massawe, S., E. Urassa, G. Lindmark, and L Nystrom. 1995. Anemia in Pregnancy: Perceptions of Patients in Dar Es Salaam. East African Medical Journal 72(8):498–503.

Middleton, Jon. 1992. The World of the Swahili: An African Mercantile Civilization. New Haven: Yale University Press.

Mwinyi, Bakari Bin, ed. 1981. The Customs of the Swahili People. Berkeley: University of California Press.

Nisula, Tapio. 1999. Everyday Spirits and Medical Interventions. Saarijarvi: The Finnish Anthropological Society.

O'Malley, Gabrielle E. 2000. Marriage and Morality: Negotiating Gender and Respect in Zanzibar Town. Ph. D. dissertation, Department of Anthropology, University of Washington. Pool, Robert. 1994. Dialogue and the Interpretation of Illness: Conversations in a Cameroon Village. Oxford: Berg.

Reid, Russell M. 1992. Cultural and Medical Perspectives on Geophagia. Medical Anthropology 13:337–351.

Shulman, C. E., E. K. Dorman, F. Cutts, K. Kawuondo, J. Bulmer, N. Peshu, and K. Marsh. 1999. Intermittent Sulphadoxine-Pyrimethamine to Prevent Severe Anaemia Secondary to Malaria in Pregnancy: A Randomised Placebo-Controlled Trial. Lancet 353: 631–6.

Stoller, Paul. 1989. The Taste of Ethnographic Things. Philadelphia: University of Pennsylvania Press.

 — 1997. Sensuous Scholarship. Philadelphia: University of Pennsylvania Press.

Stoltzfus, Rebecca J. 1997. Rethinking Anaemia Surveillance. Lancet 349:1764–66.

Stoltzfus, Rebecca J., Jim Tielsch, Mahdi Ramsan Mohammed, Lorenzo Savioli, and Marco Albonico. 2001. Research Proposal: Preventing Unnecessary Blood Transfusions in Young Children and Pregnant Women in Africa through Effective Primary Care. Baltimore: John Hopkins School of Public Health.

Vermeer, D. E., and D. A. Prate. 1979. Geophagia in Rural Mississippi: Environmental and Cultural Contexts and Nutritional Implications. American Journal of Clinical Nutrition 32:2129–35.

Wiley, Andrea S., and Soloman H. Katz. 1998. Geophagy in Pregnancy: A Test of a Hypothesis. Current Anthropology 39(4): 532–545.

Young, Sera L. 2002. Critically Ecological Medical Anthropology: Selecting and Applying Theory to Anemia During Pregnancy on Pemba, Zanzibar. Medische Anthropologie 14(2):321–352.

—n.d.-a The Political Dimensions of Anemia Treatment During Pregnancy in Zanzibar, Tanzania. Unpublished MS, Department of Medical Anthropology, University of Amsterdam.

Young, Sera L. and Saidi M. Ali. 2004. Linking traditional treatments of maternal anaemia to iron supplement use: an ethnographic case study from Pemba Island, Zanzibar. Maternal and Child Nutrition. In press.

Zanzibar, Government of, and UNICEF. 2001. Situation Analysis for Women and Children in Zanzibar. Zanzibar.

Zuckerman, Jocelyn. 2001. Island Spice. Gourmet May: 222-230.

# Nutritional Habits of Unskilled Rural Laborers in Cairo<sup>1</sup>

#### Ayman Zohry, Ph.D.

Visiting Assistant Professor

Dept. of Epidemiology & Population Health Faculty of Health Sciences, American University of Beirut P.O. Box 11-0236, Riad El-Solh 1107 2020, Beirut, Lebanon

**KEY WORDS:** Migrant Workers, Meal Patterns, Food Access, Health of the Working Poor

**Abstract:** The researcher interviewed 242 unskilled rural laborers who migrated to Cairo for work. In addition, 20 in-depth-interviews were carried out. The laborers were asked about their nutritional

habits and food consumption in light of their harsh work in the construction field. Because of the low level of their housing conditions in Cairo and the unavailability of cooking equipment in most of their rented places, laborers buy ready-made food from street vendors and cheap restaurants in Cairo. I asked interviewees to list the type – and the quality and quantity – of food that they ate in the last three meals (breakfast, lunch, and dinner). The reason for asking such questions is not to achieve a precise analysis of their nutritional habits, but to explore the general characteristics of their patterns of food consumption. The results revealed that their food was of the cheapest kind; often bought from street vendors. Their food is meager and their work is very hard. Part of the reason for the migrants' poor material living conditions in Cairo, including food consumption, was their need to save and remit as much of their low wages as possible.

#### INTRODUCTION

Economic and cultural studies have shown how income and food costs determine food selections, and often override considerations of "healthfulness," social desirability, and even taste. Availability of foods and the relative cost both in terms of time and money of acquiring and then processing particular types of foods are considerations in any cultural survival strategy. In addition, socio-cultural factors must always be considered in calculating human food selection and consumption (Pelto et. al., 1989). This study investigates the nutritional habits of unskilled rural Upper Egyptian laborers (Upper Egypt is the southern less developed part of Egypt) who migrate to Cairo without their families to work in the informal sector of the capital's economy, mainly in construction. This research addresses migrant workers' patterns of food selection and consumption.

#### THE STUDY POPULATION

Migrants from Upper Egypt included in my sample survey in Cairo are young, rather poorly educated, and from poor socio-economic backgrounds. The mean age of interviewees is 29 years, and 55 percent are aged 20–29. Only 10 percent are aged less than 20, but 35 percent are aged 30–35. Migrants surveyed in Cairo are overwhelmingly from low-qualification school backgrounds: 46 percent have no recognized level of schooling and 35 percent have achieved only the low-status secondary technical level. Older migrants have lower educational achievements than younger migrants.

Migrant laborers work an average of 8.5 hours per day. They work 4.9 days on average per week. Their average daily wage is LE 19.30 (US\$ 4.50). About one-fifth of the migrants have had serious injuries related to their job while working in Cairo. The average loss of time due to work-related injuries is about five working weeks per year. Migrant laborers are not covered by any social or health insurance. They do not have access to many of the "normal" aspects of Cairo life, such as proper accommodation, decent health care, social welfare, workers' rights, opportunities for social and economic advancement.

Laborers do heavy jobs like unloading and lifting sacks of cement, sand, or loads of bricks.

#### STUDY DESIGN AND METHODS

A questionnaire/interview survey of rural-urban migrant workers in Cairo was the primary method used in gathering the data reported below. Detailed, tape recorded in-depth interviews were conducted with a small sample of these respondents. The questionnaires were conducted at a variety of public locations frequented by rural laborers in the city of Cairo from June to October, 2000. The laborers were easy to find because they are known to gather in public squares, parks, and coffee shops. Hopeful employers go to those places to find willing workers and, in turn, the workers await opportunities to be asked to work. Most questionnaires were administered either early in the mornings, before the employers began hiring, or in the evenings when laborers would gather in coffee shops in the hope of being hired for the next day. Some questionnaires were administered in the course of the day with laborers who did not manage to catch a full day employment opportunity and who were waiting for short task-based assignments. Others were administered in laborers' residences in Cairo.

The questionnaire includes the following main groups of questions: Background information including age, education, place of origin, marital status, number of sons and daughters (if ever married); Information about work including current and previous jobs, number of working hours per day, number of working days per week, daily wage, duration of current work, health insurance, occupational safety, accidents and injuries related to work; and, Information about living conditions in places of origin and destination including ownership of durable goods in village of origin, access to electricity, piped water, and sewage disposal, ownership of agricultural land, livestock, agricultural machines and vehicles, cost of living in Cairo; nutritional status and expenditure on food and health.

### LIVING CONDITIONS

About 38 percent of the migrants pay nothing for their housing in Cairo, which consists mostly of derelict properties and houses. Some of these places can host more than twenty migrant laborers. Migrants who live in such places have almost no luggage or personal possessions. Some have only worn-out blankets that they borrowed or bought for next to nothing. They buy their food from street vendors and do not prepare any food themselves. The food is low in calories and fat and appears inadequate to meet the heavy laborers' energy needs, but it is very inexpensive.

The vendors working in the streets take advantage of marginal employment opportunities that are created by the demand of the migrants. Tea makers and food vendors in particular have established their business in the street to serve

these working migrants. Most of the tea makers position themselves near large groupings of laborers, bringing with them their primitive tea making equipment—gasoline stove, cups, tea spoons, sugar, tea, and water tank(s). The prices are half the general Cairo equivalent. Most of these vendors were former construction laborers who are unfit to work in construction any more due to age. Some of the vendors, however, were second generation having inherited the business from their parents.

#### **FOOD EXPENDITURE ITEMS**

Respondents were asked to estimate their daily cost of living to dwell in Cairo. They were asked to provide details of their daily expenses for consumables such as food, tea, and cigarettes. Table 1 summarizes the range and average daily expenses for these consumables. These expenses range from 2.5 to LE 15 (US\$ 0.60 to 4) with an average of 6.34 per day. The average amount of money spent per day for consumables comprises about 40 percent of migrants' average daily income.

Food expenditures comprise the bulk of the migrants' living expenses while working in Cairo. Food costs vary widely between LE 1 to 8.5 per day, with an average of LE 3.64. Overall food costs represent 57.4 percent of the workers' total daily expenses.

Tea is the most popular drink in Egypt and is a significant social activity. Migrants spend about one-fifth of their daily expenses on tea, and almost the same proportion on cigarettes. This finding is consistent with the Egyptian cultural practice of tea drinking. Tea drinking has typical patterns among all Egyptians. Upper Egyptians, from the south, typically prefer strong tea with about four spoons of sugar per cup. Tea among the poor is considered a dessert. Tea is very inexpensive, especially from the street vendor. One cup of teach costs only LE 0.25 from a street vendor. Some workers drink eight cups of tea per day.

Smoking is a popular habit and 67.8 percent of the migrants interviewed reported smoking. They reported smoking cigarettes and also the water pipe, or what is called *shisha* in Egypt. The *shisha* is an oriental smoking device that uses the water to filter the tobacco. It is important here to mention that, smoking cigarettes or *shisha* is regarded as an affordable luxury for enduring their low standards of living in order to work in Cairo. Other reported expenses include the costs of

**Table 1.** Migrant laborers daily expenditures for consumables (LE) Cairo, June–October 2000

Item	Minimum	Maximum	Average	Percent
Food	1.0	8.5	3.64	57.4
Tea	.0	3.0	1.18	18.6
Cigarettes	.0	4.8	1.31	20.7
Other	.0	5.0	0.21	3.3
Total daily expenses	2.5	15.0	6.34	100.0

hospitality for new arrivals and visitors from the villages back home.

#### **FOOD AND NUTRITION**

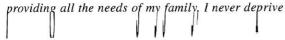
Migrant laborers tend to buy ready-made food from street vendors and cheap restaurants in Cairo because coking equipment is unavailable in their housing. As a part of the interview, informants were asked to list the type and describe the quality and quantity of foods consumed during their last three meals (breakfast, lunch, and dinner). These data provide a general picture of meal patterns among the migrants that can be compared to that of other Etyptians in both Cairo and Upper Egypt.

Meat consumption is the main indicator of nutritional well-being in Egypt. As a rough estimate—from my own observations—average Cairo families eat meat about twice per week. However, meat is cheaper in Upper Egypt than in Cairo, so that, despite the overall marked difference in income standards, average Upper Egyptian families purchase meat once per week and eat home-reared chicken or other birds once per week also. Both Cairo and Upper Egypt "average" residents eat meat twice per week. The only difference is that Cairo residents purchase it twice a week while Upper Egyptians purchase it once per week. Migrant laborers reported they did not eat meat in Cairo and that they last ate meat when in their own village. They preferred not to eat meat while in Cairo in order to save money. The vast majority reported that they last ate meat on the occasion of their last visit to the village.

Foods commonly eaten include falafel, a traditional Egyptian food. Traditional falafel are spicy, deep-fried bean patties or balls. Their basic ingredient is ground broad beans, chickpeas, or a combination of both. They are tasty, low in price, rich in proteins and carbohydrates, and high in calories. They make a very satisfying main courses or light snacks.

"When I have enough money, I head into a restaurant. When I do not, I just buy falafel for 0.50 Egyptian pounds and bread. I mean I purchase some beans and falafel in the restaurant. When I do not have enough money, I buy two pieces of bread, just something to eat for LE 0.30 or 0.40. At night, I also have dinner at the restaurant if I have enough money. If not, I go eat beans. I eat meat only in my hometown because meat here—in Cairo—is expensive. Moreover, I do not have enough money to order meat at restaurants" (Mohamed).

Some migrants do not eat much because they believe that they should suffer like their families in Upper Egypt. "Before I eat anything here in Cairo, I think about those in my home. Even if my mouth waters to eat chicken, meat, or any thing else, I ignore it for the sake of my family. They are deprived from certain things at home, and I am here too" (Henein). Other migrant laborers behave select foods depending on their income. "It depends. I mean that when I earn some money, and after



myself from anything I need. If I do not care about myself, I will definitely be gone" (Zaki). But some are satisfied with their extremely modest eating habits. "No meat, sir. I had beans for breakfast, and get lunch for LE 0.50. As for dinner, it is usually bread and cheese. Thank God, this is very satisfying to me" (Dessouky).

"I eat meat once a month when I go back to my hometown," said another one of the interviewees. The nature of their work is very tough, but their food is very light. "For breakfast, I usually go to a baker and get two bread pans for LE 0.25. As for lunch, I get something not more than one pound; such as three loaves of bread, falafel, fried eggplant and stuff," said another one. "The only way for me to get meat is to get it on a charity basis from a benevolent man, otherwise, we will never get close to it. It is exorbitantly expensive, as you can see" (Diab). It is worth mentioning that, newcomers from the village and migrants returning from village-visits always bring with them home-made food that is to be shared by all residents of the household - most of whom, as we saw before, are likely to be from the same village or village grouping. It is a good occasion for these hard-working migrants to share some happy times and eat food which reminds them of home and their families.

## CONCLUSION

This research has ranged over issues relating directly and indirectly to living conditions of migrant workers, their expenditure on food, and their nutritional habits and practices. Living conditions in Cairo were found to be very poor. Often 10 or 15 migrants would share the same bedroom, sleeping on blankets on the floor, with no cooking facilities and only the most rudimentary sanitary facilities. Many migrants lived in ruined buildings or buildings under construction; a few even lived on the street. Their food was of the cheapest kind, often bought from street vendors whose jobs are specially geared to serving migrant construction workers. Part of the reason for the migrants' poor material living conditions in Cairo was their need to save and remit as much of their low wages as possible, which affected their nutritional habits and food expenditure and quality. An in-depth nutritional study of Upper Egyptian migrant laborers living in Cairo would document the effect of poverty, limited food supplies and hard labor on the health and well-being of this economically marginal group.

## NOTE

 The research on which this article is based was supported primarily by the Middle East Awards in Population and the Social Sciences (MEAwards), MEA 427, The Population Council.

#### REFERENCES

Jerome, N. 1980. Nutritional Anthropology: Contemporary Approaches to Diet and Culture. Gordon and Breach Science Publishers.
Johnston, F. (ed.) 1987. Nutritional Anthropology. Wiley-Liss.
Pelto, G. H., Pelto, P. J., and Messer, A. (eds.) 1989. Research Methods in Nutritional Anthropology. The United Nations University.
Wardlaw, G. M. and Kessel, M. 2001. Perspectives in Nutrition.
New York: McGraw-Hill.

Zohry, A. 2002. Rural-to-Urban Migration: A Study of Upper Egyptian Laborers in Cairo. Unpublished Ph.D. thesis, Sussex University.

# Research Report

# Green Corn Ceremonialism and Ethnonutrition: A Case Study on the Biocultural Evolution of Maize Processing

#### By Barrett P. Brenton

Associate Professor, Department of Anthropology St. John's University New York

**KEY WORDS:** Food Production. Native Americans, Health outcomes, Ethnoarchaeology, Food Beliefs

Abstract: A focus on the biocultural evolution of maize processing in human diets can provide us with a number of engaging case studies in nutritional anthropology and within a loosely defined field of ethnonutrition. Most Native American horticultural societies throughout North America traditionally took part in ceremonies focused on the harvest and consumption of green corn (unripened maize). In many communities these rituals continue today. They range from small family gatherings to community-wide celebrations ushering in a New Year. Culinary traditions include everything from the pit-baked sweet corn of the Hopi to roasted unripened "field" corn of the Mandan. Perhaps more aptly put, these events are in recognition of the ripening of corn. These ceremonies mark the developmental process through which an assured harvest is both expected and celebrated. This research report introduces the ceremonial significance of the green corn harvest in the context of its ethnonutritional and biocultural significance as a food (Brenton 1995). Specific examples are selected to highlight the intense social importance expressed through public displays of green corn consumption across Native North America. These serve to underscore the nutritional significance of consuming corn in a green state and force us to expand our ideas about incipient horticulture and biocultural evolution of maize processing in Native American communities.

# CEREMONIAL USE AND PREPARATION OF GREEN CORN

Extensive ethnographic and ethnohistoric data exist describing the processing and ceremonial importance of unripened maize (e.g., Beaglehole 1937; Campbell 1959; Gradwohl