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F&V CONSUMPTION AMONG MIGRANTS

Editorial

Immigrants form vital elements of the economy and broaden cultural diversity in the host country. They promote economic development and social change by integrating within the host culture, often by modifying their lifestyle and food habits. Many immigrants belong to low socio-economic groups and are employed in low-paid jobs with irregular and shift work, and non-social hours, leading to poor diet and lifestyle. The reported risk of such diet-related diseases as diabetes, cardiovascular disease and hypertension in groups such as South Asians and Afro-Caribbeans is much higher than that of Caucasians.

Dietary habits differ considerably amongst immigrants; however, the majority will alter their eating habits by combining parts of their traditional diet with less healthy components of the Western diet. In particular, mixed dietary habits are emerging within younger generations, with soft drinks, crisps, sweets, snacks and convenience foods often replacing fruit, vegetables, legumes and cereals. Age and immigrant generation are the major factors accounting for changes in dietary habits, but income, level of education, dietary laws, religion and food beliefs are also significant.

There are several limitations that inhibit an understanding of declining health in immigrant groups, including the reliability of food intake data and the causes of morbidity and mortality (often based on limited and small scale studies). However, until such data is available, dietary advice on nutritional benefits of traditional diets should be focussed on cereals and legume grains, fruit and vegetables.

Santosh Khokhar
University of Leeds, UK

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HEAD OFFICE
International Fruit And Vegetable Alliance
c/o Canadian Produce Marketing Association
162 Cleopatra
Ottawa, Canada, K2G 5X2

IFAVA

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E-mail : chairman@ifava.org

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E-mail: jeanne@ifava.org

Individual and Neighborhood Differences in Diet Among Low-Income Foreign and U.S.-Born Women

— Tamara Dubowitz —

RAND Corporation - Pennsylvania, USA

Latinos are the largest and most rapidly growing minority group in the United States, and the most current census estimates show that of the U.S. Latino population, 43% are born outside of the United States (Lollock, 2001). Research on the "immigrant" or "Latino health paradox" has demonstrated that Latinos exhibit better health than U.S.-born whites, for outcomes that include birthweight, infant mortality, and diet, even after adjusting for socioeconomic status ([Abrams and Guendelman 1995], [Dubowitz et al 2007], [Norman et al 2004], [Singh and Siahpush 2001] and [Sorlie et al 1993]).

Limited research to date has looked at the role of the neighborhood residential environment with respect to health and dietary behaviors across immigrants and U.S.-born populations. We investigated how neighborhood context might be associated with diet above and beyond individual level factors, among a population of predominantly Latina foreign- and U.S.-born, low-income women in Massachusetts, United States.

Data analyzed to understand individual and neighborhood influences on diet

We analyzed baseline data from 641 low-income women, nested within 184 census tracts (i.e. neighborhoods), and enrolled in a nutrition intervention trial for postpartum women. Individual-level covariates analyzed included race/ethnicity, nativity, duration of time in the United States, language acculturation, emotional and instrumental support, and socioeconomic position. We assessed daily fruit and vegetable servings through a semi-quantitative food frequency questionnaire.

On the individual-level, age, nativity (born inside or outside of the U.S.), native language, race/ethnicity, and social support were significantly associated with fruit and vegetable intake. Foreign-born women living in the United States for 0 to 14 years had significantly higher consumption than those born in the United States, although the consumption of foreign born living in the United States for >14 years was not significantly different. Older women, Latina women and women with higher levels of social support had higher fruit and vegetable consumption.

When we examined the neighborhood-level variables, we found that each additional 10 percentage points of foreign born population in the tract translated to an individual increase in 0.3 fruit and vegetable servings daily. We observed a significant inverse association between proportion of Black population in the census tract and individual-level daily servings of fruit and vegetables. For each additional 10 percentage points of Black population as a proportion of the tract, individual fruit and vegetable consumption decreased by approximately 0.2 servings per day.

Conclusions

We found that women who lived in immigrant neighborhoods demonstrated higher fruit and vegetable intake, regardless of whether they themselves were immigrants. One important question that emerges from this work is what it might be about immigrant neighborhoods that may improve diet. We hypothesize that immigrant neighborhoods may have differential material resources that improve diet (e.g., better supply or availability of produce, or fewer unhealthy resources like access to fast foods high in added sugars and fats).

We observed that as the proportion of Black population in a neighborhood increased, women had a lower than average consumption of fruit and vegetables. In the U.S., differential neighborhood risks and resources are distributed across racial lines, which often operate in conjunction with concentrated poverty to influence health ([Massey and Denton 1988], [Massey and Denton 1993], [Williams and Collins 2001], [Williams 1996], [Williams 1997] and [Williams 1998]). We might have found a detrimental diet effect in Black neighborhoods owing to an increased presence of fast food, or decreased presence of healthy food. Alternately, there may be other neighborhood characteristics, such as less developed transportation infrastructure, or lower neighborhood walkability and access to services, which facilitate women's shopping at healthier venues outside of their own neighborhood.

Our analysis found associations with individual diet on both the individual and neighborhood levels. The findings highlight potential mechanisms that might exist to influence diet, such as social and language networks in different racial and nativity groups. Our results also suggest that immigrant neighborhoods may be beneficial to the diet of women who live there, regardless of whether the women themselves are US or foreign born.

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Determinants of fruit and vegetable consumption among Sub-Saharan African (SSA) migrants in Australia: Implication for public health

— Andre M.N. Renzaho and Alyce Wilson —

WHO Collaborating Centre for Obesity Prevention and Related Research and Training ; Deakin University, Australia

Adult migrant fruit and vegetable intake

Recent studies conducted in Australia[1, 2] indicate that African migrants' fruit and vegetable intakes may be below Australian target levels (i.e. 2 servings of fruit and 5 servings of vegetable per day[3]). Current fruit and vegetable intakes among SSA migrants in Australia have declined among adults but are adequate among children. For example, consumption of fruit among Ghanaian migrants in Sydney, Australia, was found to be 14.2 and 12.6 servings lower per week for men and women respectively in comparison to self-reported pre-migration fruit and vegetable intakes[2]. Ghanaian migrants replaced tropical roots and tubers with potato starch (flour). These findings mirror those reported by Burns[4]. Burns reported that Somali refugee women living in Melbourne had maintained fruit and vegetables as an integral part of their diet and in the process had adopted a variety of Australian fruit (i.e. plums, kiwifruit, apricots) and vegetables (i.e. broccoli), but some traditional vegetables and tropical fruits had been rejected post-migration. Reasons for rejecting traditional fruit and vegetables included high expense, lack of availability and/or different and unpleasant tastes compared to what they were used to prior to migration.

Fruit and vegetable intake of children of migrants

However, studies among SSA migrant children paint a different picture. In our recent study on the post-migration food habits of 3-12 year old African migrant children, we found that the consumption of fruit and vegetables averaged 546g and 585g respectively (when fruit juices and potatoes were excluded). This equated to 146% and 260% of Australian recommended daily intakes of fruit and vegetables respectively for children 4-11 years[5]. These fruit and vegetable intake levels were in excess of national recommendations and much greater than their Australian counterparts who only met 33 to 57% of fruit requirements and 32 to 40% of vegetable requirements. Together, these data suggest there are intergenerational (children versus parents) differences in the consumption of fruit and vegetables among SSA migrants

Cultural differences between Australian and SSA African parents

When in their new environment, Australian parents improve household access to fruit by having a fruit plate ready on a table for occasional snacking, whereas SSA African parents tend to spend their money on artificial decoration plastic fruits in lieu of real fruit. In this sense, decorating their home with artificial plastic fruits, together with having a fridge full of meat, is an expression of wealth and status. SSA African adults often replace traditional foods, mainly legumes, vegetables and fruit which are high in fiber and low in fat, with highly processed and energy-dense animal products and convenience foods. Such substitution is influenced by cultural norms because vegetables, legumes and fruit are culturally less desired and seen as survival food for poor people[6]. More research is needed to thoroughly understand the effect of cultural beliefs and attitudes on determining food habits in SSA migrants and health outcomes.

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Diet quality of North African migrants in France partly explains their lower prevalence of diet-related chronic conditions relative to their native French peers

— Caroline Méjean and Bernard Maire —
Research Unit 106, IRD, Montpellier, France

Tunisian migrants compared with non-migrant French and non-migrant Tunisians


DR

Migrant health studies, beyond their importance for public health, help formulate hypotheses on the role of environmental vs. biological determinants of chronic diseases. The process of immigration is likely to influence food consumption and lifestyle and therefore to modify the risk of associated chronic diseases. Several studies have shown that immigrants usually have higher rates of mortality and morbidity linked to nutrition-related noncommunicable diseases than the native population of their new host country, and also higher than the population of their home country. However this is not the case of Mediterranean migrant men living in Europe, an exception once called 'the Mediterranean migrants paradox'. Among the possible explanations was the conservation of a traditional healthy diet. We therefore studied diet quality and its influence on nutrition-related noncommunicable diseases in Tunisian migrant men living in the south of France compared with 2 nonmigrant male groups: local-born French of the same region and non-migrant Tunisians. The sampling was based on a quota of 150 men in each group related to age and place of residence. Native French men were matched for age and socio-professional category while the non-migrant Tunisian group was matched for age and geographical origin.

Components of the Diet Quality Index-International as mediators for effect of migration on disease

Using appropriate regression models, components of the Diet Quality Index-International (DQI-I) were tested as potential mediators for the effect of migration on overweight, hypertension, hypercholesterolemia, type-2 diabetes, and cardiovascular diseases. The total DQI-I score revealed good overall diet quality for all groups. Migrants scored higher than the French in variety (number of food groups, and varied sources of proteins), adequacy (level of agreement with various recommendations for preventing chronic diseases), and moderation (average level of lipids, saturated fatty acids, cholesterol, sodium or empty calories) and lower than Tunisians in overall balance (relative proportion of macronutrients, and of fatty acids). Migrants displayed a lower prevalence of overweight than French, lower prevalence of diabetes and CVD than non-migrant Tunisians, and lower prevalence of hypertension and hypercholesterolemia than the 2 non-migrant groups. A lower level of alcohol drinking was found as the main potential mediator for overweight between migrants and French.

Dietary adequacy, high consumption of fruits, and higher levels of vitamin C were mediators of the difference in hypercholesterolemia while the effect on hypertension was mediated by diet adequacy and fibre. Compared with non-migrant Tunisians, the effect of migration on hypercholesterolemia appeared mediated by saturated fat. Healthcare utilisation, smoking and physical activity were mediators for the effect of migration on diabetes. The effect of migration on cardiovascular diseases was mediated by healthcare utilisation and energy intake. No obvious mediating effect was found for hypertension and hypercholesterolemia. Despite increasing levels of overweight, obesity and various related noncommunicable diseases in France, but also in Tunisia due to the advance of a fast growing nutrition transition, migrants appear to have conserved some healthy dietary characteristics. This partly explains their difference with local-born French, though other lifestyle factors also contribute to the favourable effect of migration.

Dietary differences between groups

Although the three diets did not appear strikingly different, as all three are of the 'Mediterranean' type, there were small differences which appear to have a significant impact on health. Tunisian migrants eat more pulses and less meat and dairy products than native French men. They also eat more fruits and vegetables, and as a consequence more fibre and vitamin C. They also kept the habit of a regular consumption of olive oil, which means a more favourable unsaturated to saturated fatty acid ratio, though their total lipid consumption was rather high. Conversely, they avoided consuming too much sugar (including sodas) contrary to non-migrant Tunisians. Therefore, this study would indicate that small differences in saturated fat, sodium, fibre, vitamin C and sugar within a Mediterranean type diet, based on a fair share of fruits and vegetables, and associated to a slightly higher physical activity level, appear to have a significant and durable effect on various aspects of health. This observation can be of interest for the design of nutrition programmes based on small diet and physical activity changes.

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