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FOOD SYSTEMS, OBESITY, AND GENDER IN LATIN AMERICA

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ABSTRACT

With more than half the population affected by overweight (58%) and almost a quarter (23%) suffering from obesity, Latin America is experiencing an unprecedented health crisis that impacts most of the countries in the region (FAO 2017). The problem is more prevalent among women than men. Overall, the region faces a triple burden of malnutrition, because in addition to overweight and obesity, there are also problems of undernutrition and micronutrient deficiency. The topic is very complex, multisectoral, and must be studied from different viewpoints. There is evidence showing that certain groups are more affected, which is the case with women. The impact on other groups and ages varies by country, geographical regions, the urban/rural divide, income and education levels, and ethnic origin.

This paper explores some of the existing linkages connecting the food system, trends in overweight and obesity, and the gender divide in Latin America from the point of view of women, who, as noted, seem to be disproportionally affected by this health condition compared to their male counterparts. This literature review explores different dimensions of women's roles and conditions within food systems that influence their health and nutrition in Latin America, including (a) women as farmers and other affected groups such as indigenous peoples; (b) women as traders of agricultural products; (c) women's role and participation in feeding schemes; (d) women as workers in the agrifood industry; (e) women as informal street food vendors; and (f) considerations regarding the time invested in food preparation at the household level and women's participation in this task. Other themes to take into account are the effects of rural poverty and gender inequality on these populations across Latin America and the Caribbean. It is a matter of urgency to understand the underlying causes why some populations are more affected by overweight and obesity than others, as this will allow governments to design policies that tackle those problems at their root. The goal of this review is to provide information that can help to develop efficient and equitable interventions and targeted policies to reduce the current trends of overweight and obesity in Latin America, with a focus on women.

INTRODUCTION

According to the FAO report presented during its thirty-fifth Regional Conference for Latin America and The Caribbean (FAO 2018) at Montego Bay, Jamaica, hunger and food insecurity had increased since 2016 for the first time in two decades. At the same time, the PAHO/FAO Panorama of Food and Nutrition Security in Latin America and the Caribbean (FAO 2017) also show that with a few exceptions, rates of overweight and obesity have increased and are currently affecting a large percentage of the active population in most countries in the region, with a few exceptions including Haiti, Paraguay, and Nicaragua. An estimated 360 million people are overweight, almost 58% of the region's total population, including 3.9 million children under the age of five. Countries more affected by overweight trends include the Bahamas (69%) with the highest rates observed, followed by Mexico (64%) and Chile (63%). The report by FAO, IFAD, UNICEF, WFP and WHO (2019) also noted that obesity (a subset of people overweight) affects about 105 million of adult people—24% of the region's adult population—and that some of the highest rates are found in the Caribbean countries such as Bahamas (32%), but other countries in the region are closer to 29% such as Mexico, Argentina, Chile and Uruguay.

These worrisome trends, if they continue, will make it impossible for the region to fulfill Sustainable Development Goal 2—to end hunger and achieve food security and improved nutrition,[1] as well as to reach the targets set by the 2030 Sustainable Development Goals agenda.

Overweight and obesity are linked to important risk factors for chronic noncommunicable diseases (NCDs) such as diabetes, heart disease, hypertension, and some cancers—all of which are leading causes of death. It is estimated that more than 23% (FAO 2017) of the adult population in the region is at risk of developing these conditions. Furthermore, the human cost, as measured in healthy lives (physical and mental), has important social and economic consequences for the countries—not only the costs to the healthcare system (Anauati *et al* 2015) but also the reduction in welfare and productivity of those affected directly or indirectly by these diseases. According to the 2017 Economic Commission of Latin America and the Caribbean and the World Food Program (ECLAC-WFP) report, investments to tackle overweight and obesity treatments represent 3.1% of the social public expenditure on health in Chile, 17.5% in Mexico, and 83% in Ecuador. Additionally, these costs are expected to grow exponentially in Chile and Mexico (70%) and in Ecuador (150%) for the next 45 years, according to projections based on 2014.[2] The case of Brazil is particularly alarming, with costs of estimated at US$5.8 billion since 2010 (Rtveladze et al., 2013)**.**

More generally, both overweight and obesity are directly linked to factors that determine the disparity between energy intake and energy use. Energy intake and use are both related to environmental and behavioral factors and are impacted by rapid rates of urbanization, which have led to easy access to cheaper high calorie food items, a lack of exercise and increase in sedentary habits, and more importantly, constant changes in the labor market, with an increase in female representation at all levels (Popkin and Reardon, 2018; Cutler D, Glaeser E, Shapiro J. 2003). Some common aspects that have been registered as part of the problem are the continuous changes in food consumption favoring the adoption of unhealthy diets and over-processed foods (fast-foods or junk foods), lack of mobility, and in most instances, the absence of policies and regulatory frameworks, along with improved investments, to confront these challenges (FAO 2018, Popkin and Reardon, 2018).

However, there are differences related to economic conditions. For instance, Figure1 shows differences in wealth levels across the world regions and that poverty is associated with lower levels of obesity in most regions, except for Eastern Europe.

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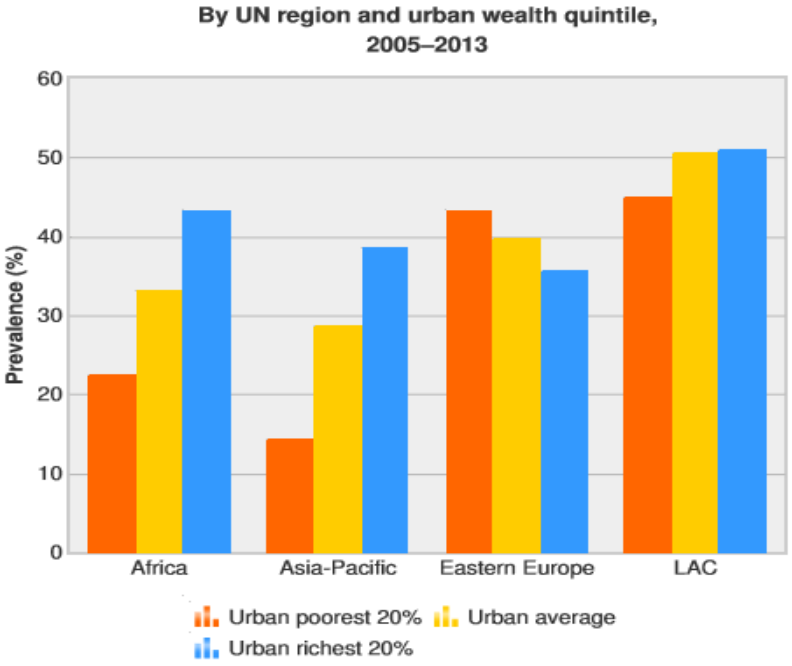
[1] Sustainable Goal 2: End hunger, achieve food security and improved nutrition, and promote sustainable agriculture https://www.un.org/sustainabledevelopment/sustainable-development-goals/.

[2] The ECLAC-WFP report states that costs will grow "*only for the population in force in 2014 and keeping constant the epidemiological profile in that same year*" representing a heavy burden for the health system and society, p. 6.

Figure 1: Prevalence of obesity in women (15 to 49 years) in urban areas



Source: WHO calculations based on data from DHS and MICS, 2005–2013.[3]

Across Latin America, there has been a call to target all the causes of malnutrition and to look for a holistic approach aimed at reverting trends toward widespread unbalanced diets and more sedentary lifestyles, as well as extending sanitation[4] and improving poor health services and ineffective or weak social protection programs (FAO-PAHO, 2017).

For instance, in recent decades, the region has established several international initiatives and agreements aimed at tackling the problem of hunger and malnutrition in all its forms. Some of these initiatives include the *Hunger Free Latin America and Caribbean Initiative* (IALCSH),[5] the Community of Latin American and Caribbean States' *Plan for Food and Nutrition Security and Hunger Eradication 2025* (FNS-CELAC). FNS-CELAC and the framework of the *United Nations Decade of Action on Nutrition 2016–2025* are considered to be important steps to guide policy into needed action across regions. In Latin America, this political commitment is also represented through the number of National Parliamentary Fronts Against Hunger,[6] with a total of 19 countries represented[7] and an active agenda with a focus on food and nutrition security that has led to the adoption of several model laws by the Latin American and Caribbean Parliament or PARLATINO. These laws include the *"Model Law on Family Farming,"* the "*Regulation of Food and Soft Drinks Advertisement and Sale Promotion for Children and Adolescents,"* and the *"Framework Law on School Feeding."*[8] Other related initiatives include the reduction of food loss and waste, the creation of platforms to raise awareness by all sectors

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[3] These results represent averages of those countries for which urban Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) data were available for overweight and obesity among women during 2005–2013 (Africa=31 countries, Latin America and Caribbean=7 countries, Asia-Pacific=9 countries, Eastern Europe=4 countries). As such, they are not representative of the regions as a whole. http://www.who.int/gho/urban_health/physiological-risk-factors/women_obesity/en/.

[4] Currently, about 86% of total population in LAC has access to basic sanitation services (68% in rural areas and 90% in urban areas).

[5] The Hunger Free Latin America and Caribbean Initiative (IALCSH) aims to end hunger and fight malnutrition by 2025

[6] Latin American and Caribbean parliament members promote the First World Summit Against Hunger and Malnutrition. Declaration of the 8th Forum of the Parliamentary Fronts Against Hunger in Latin America and the Caribbean, October 25–27, 2017. Montevideo, Uruguay. http://www.fao.org/in-action/agronoticias/detail/en/c/1052074/

[7] Countries with National Parliamentary Representation Fronts Against Hunger are Argentina, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Plurinational State of Bolivia, Saint Vincent and the Grenadines, and Uruguay.

[8] Model Laws on family farming (http://parlatino.org/pdf/leyes_marcos/leyes/ley-agriculturafamiliar-esp.pdf), the "Regulation of food and soft drink advertisements and sales promotions to children and adolescents" http://www.parlatino.org/pdf/leyes_marcos/leyes/proyecto-regulacion-publicidad-regulacion-pma30-nov-2012.pdf), Framework Law on school feeding (http://www.parlatino.org/pdf/leyes_marcos/leyes/leyalimentacion-escolar-pma-19-oct-2013.pdf).

of society, as well as the inclusion of the private sector to support public policy that aims at strengthening food and nutrition security. The role of policy makers in the development of healthy food systems is crucial, and overweight and obesity should be treated as a "public issue" instead of an individual's problem.[9]

Central to the analysis of food systems is the conceptual framework developed by the High-Level Panel of Experts (HLPE, 2017) at the Committee on World Food Security (CFS) treating food systems, diets, and nutrition as integral and interrelated issues (see also Glopan, 2016). The framework considers important constituent elements, such as the food supply chain (production, storage, and distribution, processing and packaging, retail and markets), food environments, and consumer behavior and diets. All of these must be considered in designing policies and interventions to make a positive impact on nutrition and health outcomes (HLPE, 2017). This framework suggests political, programmatic, and institutional actions applicable at the country level, which must be connected to the achievement of the Sustainable Development Goals. The concrete message is to pay attention to "evolving dietary needs" in a sustainable way and to take into account the fact that a sectoral approach will not be enough; concerted actions and transformative changes in the agriculture and food systems are necessary.

Social and technological and international and local forces have all contributed to profound changes in the food system (industrialization, trade liberalization, privatization of government food programs), and today it is more commercialized as urbanization in Latin America is increasing and more people choose convenience over time-consuming food preparation (Popkin and Reardon, 2018). Popkin and Reardon (2018) point out that there is a noticeable shift to adopt more convenient, ready-to-eat, and industrialized foods and that a "complete return" to "traditional foods" will not take place any time soon. The authors observed that important changes in the adoption of prepackaged or industrialized food can be considered as a "snowball effect" due to consumer choice and increased demand for ultra-processed foods (UPF) that has resulted in expanded investments and more processed foods in the market (Popkin and Reardon, 2018). Some other factors fueling the "snowball effect" include a large share of people, mainly women, entering the labor force and working outside the home, and less time available to be invested in preparing healthy meals, which has resulted in the adoption of convenient easy-to-prepare meals as these foods have become more accessible with the proliferation of supermarkets and corporations. This trend of favoring diets made up of over-processed foods[10] that are high in sugar, salt, and fat over healthy diets rich in vitamins, fiber, and micronutrients that include fruits and vegetables, legumes, and nuts is part of the region's food-pattern development over the last 30 years.

To encourage people to adopt healthy alternatives, many countries in the region have started to enforce policies to support, regulate, and improve access to fresh and healthy products "from farm to fork" and to enforce guidelines to raise public awareness through labeling and targeted marketing of the impact their food choices. Investing in rural women locally—for example, through education schemes for consumer awareness and extension opportunities—will enhance and improve nutrition outcomes, avoiding the adoption of highly processed products that can contribute to overweight and obesity in the long run and instead substitute appropriate fresh food options accessible at the local level.

GENDER AND OBESITY: OVERVIEW OF TOPICS

Through the review of the literature related to overweight and obesity in Latin America, several main areas of study have been identified as entry points to pursue the interaction of food systems and the effects on women, as well as possible angles from which to consider future interventions to improve health conditions for women in the region. The areas of this review include (loosely following the HLPE framework): (a) women farmers who are confined in rural settings, lack mobility, and have less access to health and education; (b) women as traders of agricultural products, such as participants in value chains; (c) women's role and participation in feeding schemes; (d) women as workers in the agrifood industry; (e)

[9] "Lawmakers' action key to ending hunger and ensuring healthy and sustainable diets for all," http://www.fao.org/news/story/en/item/1160729/icode/ October 31, 2018.

[10] Not all processed foods are considered unhealthy; however, a large number of products sold at markets are high in saturated fats, salt, and sugars, and low in vitamins and minerals, and this is contributing to the spread of disease through unhealthy diets. FAO State of Food Security (2016), p. 19.

women as informal street food vendors; and (f) women and the *time* they invest in food preparation at the household level. These study areas are by no means unique and separate, and rather most of them are interrelated, impacting women's vulnerability to unhealthy patterns.

Women as Farmers

The various aspects of feminization of agriculture in Latin America has been widely studied and documented (FAO Atlas of Rural Women, 2017; SOFA 2011; FAO/IFAD/ILO 2010; Deere, 2005; Katz, 2003). There is an important correlation between the level of women's participation in the rural economic sector as part of the rural workforce and patterns of male migration across the region, whether rural to urban at the country level or internationally. While there are wide differences among countries, this trend has been documented in countries of Central America and Mexico (Katz, 2003). Today, it is estimated that 121 million people live in rural areas of Latin America, representing 20% of the total regional population; of those, 59 million are women, or 48% of the total rural population, playing a central role in the food security of their households and in the agricultural labor force (Harris, 2014, SOFA 2011).

Living in rural areas is different from necessarily working in agriculture. The estimate of women's participation in agriculture in Latin America varies widely across the countries. In the region as a whole, 20% of women are directly engaged in agriculture (FAO 2011), one of the lowest percentages worldwide. Deere (2005) underlines that there are several reasons for the underestimation of women's participation in agricultural labor markets in this region, such as undercounted participation in agricultural activities, census accuracy, and the fact that some duties or activities such as weeding and postharvest processing are often undercounted. This seminal work brings to light women's underrepresentation even in activities that are directly related to agricultural chores and at market outlets. Another consideration is that participation in agricultural and food markets is seasonal. Women, in general, are overrepresented in seasonal employment. Women's participation in seasonal work reaches more than 50% in Nicaragua, 50% in Ecuador and Guatemala, and slightly less than 40% in Panama (FAO 2011); in these countries, less than 40% of men hold seasonal jobs.

Rural people, in broader terms, are affected by the overall patterns of structural and rural transformation in the region, including rising agricultural productivity, commercialization, diversification of patterns of production (in value chains), and the rural nonfarm sector (IFAD 2016). However, rural women face several barriers—including patterns of isolation, lack of transportation, dependency, lower wages in off-farm employment—that prevent them from accessing the benefits of this transformation and oftentimes directly prevents them and their families from achieving food security due to lack of access to nutritious and balanced diets. In most countries, rural women are more vulnerable workers than men, both in labor markets and within the households, having weaker control over their earnings (IFAD 2010) to invest in food and services.

In general, women still face myriad factors that challenge their household food security, including lack of land and titles, poor agricultural extension services, and scarce access to quality seeds and fertilizers. However, when given the chance to produce or adopt healthy diet options, women consistently have improved the food intake and meal quality for their families and themselves.

The overall situation of rural women and girls differs by country and is directly related to their access to social services such as education, health, and employment. Conversely, the Latin America region has steadily reduced the gender gap in education, with a growing number of girls attending school, and in certain countries, including Argentina, Honduras, and Panama, a reverse gap has emerged (OECD 2017).

FAO presented a detailed picture of the women in the region in the *Atlas of Rural Women in Latin America and the Caribbean* (2017), monitoring their situation and their diversity (e.g., indigenous Women, African descendants) and considering how the implementation of public policies affect them through the analysis of secondary data. Patterns of distribution varied across the region and within subregions. In El Salvador, women account for 55% of the population living in the rural sector, while the shares are slightly lower in Honduras (45%) and Guatemala (44%). The report underlines that women play an important role in overall food security through their work in food production and food processing and influence the food security status of their own families through selling and other informal market activities. Women are also responsible for transferring traditional knowledge about food preparation, as is the case with the Mayan

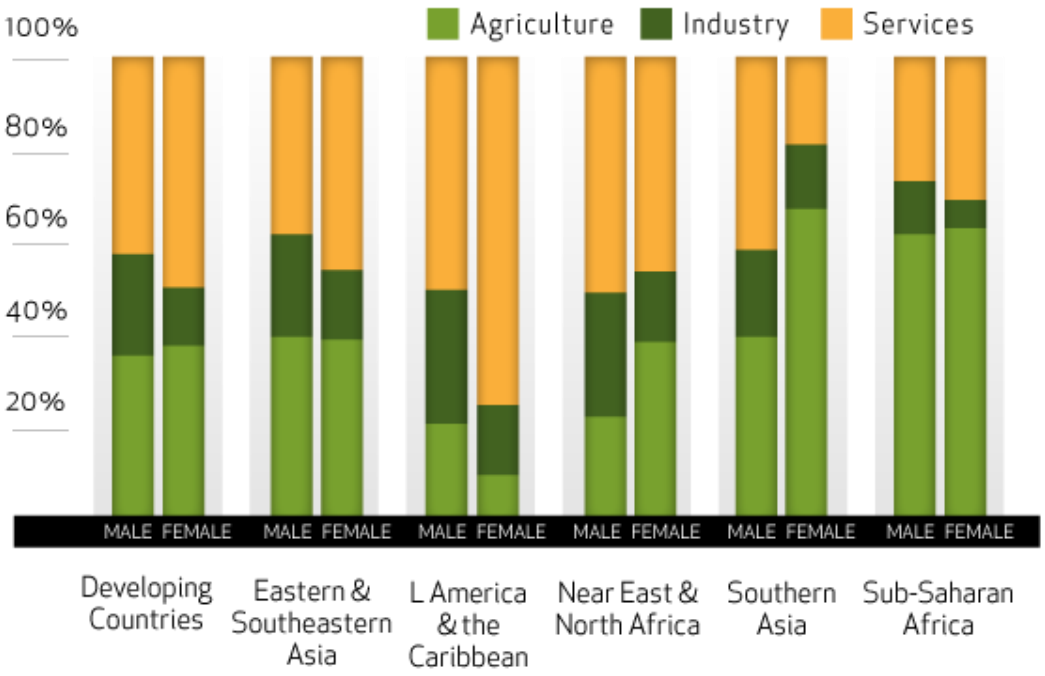
and K'iche' women in Guatemala and the Garifuna in Belize and the wider Caribbean. The women in these groups fulfill a key role in household survival strategies, including the selection of seeds intended for planting or household utilization versus directing production to the market. These women are considered the "custodians" or guardians of biodiversity (Ruiz and Vernooy, 2011), playing a pivotal role in selecting safe and nutritious foods and crops for their household diets.[11]

Regarding patterns of mobility, rural men have more access to transportation than women, whether through personal means (tractors, donkeys, bicycles), by association with local groups (cooperatives), or through other labor-related opportunities, and can move in search of better economic opportunities. Women, meanwhile, tend to be left in charge of farm production and other vulnerable members of the household (children and the elderly). This situation implies that poverty affects women more than men; the FAO Atlas reported that in Central America during 2014, for every 100 men living in poor households, there were 100.7 women in Honduras, 101.9 in Guatemala, and 103.8 in El Salvador affected by poverty. These disparities affect the economy as well as access to food and nutritional health, reflected in problems of both malnutrition and overweight and obesity.

Women as Traders in Agricultural Markets

In Latin America and the Caribbean, women are generally more concentrated in activities that relate to the service sector (see Figure 3), (SOFA 2011), and despite the rise of wholesale markets and supermarket chains across Latin America, still more than 75% of produce, particularly fruits and vegetables, are sold by women traders in open-air agricultural markets and small outlets (Reardon and Berdegué, 2002). Interestingly, women who engage in the market as traders seldom see their participation as part of a labor pattern but rather as an extension of their agricultural chores to supplement the household income.

Figure 2: Male and Female Employment (%)



Graphic FAO Infographics. The Female Face of Farming, FAO (2011a).

[11] Ruiz and Vernooy (ed.) presents a selection of case studies supported by IDRC, Canada, regarding farmers' rights to breeding materials and participation in decision-making at the national level regarding conservation of Plant Genetic Resources and also the right of farmers in poor countries to obtain the resources they need for food security (examples from Latin America include Honduras, Peru and Cuba).

More generally, women play important roles and have growing representation throughout the value chains at local and regional markets across most rural and urban locations of Latin America. A study by Weeks and Seiler (2001) in Mexico, Brazil, and Argentina brought to light that even though female representation is lower than in other regions, the number of self-employed women more than doubled between the 20-year period from 1970 to 1990 in those countries. The authors also find that the women traders and employers in those countries tend to be younger than men in similar businesses and are represented in wholesale and retail trade, even though they own smaller business.

Still, women entrepreneurs participating in markets lag behind or lack access to technology, capital, and timely information. Access to information is slowly improving, with more women owning cellular phones in rural areas. Training and education (extension and adult education) in business management, along with basic health and nutrition principles, are pivotal elements that will enhance the performance of women who trade agricultural and other perishable products in markets. Women tend to be aware of information (either by word of mouth or via local organizations) of the nutritional value of their produce; in addition, they hold important indigenous knowledge of food use and preservation. This is not always accompanied by adequate and sanitary locations in food markets where they offer their produce, but this situation is slowly changing with more government sanitary controls, registration processes, and support to market and informal vendors in more countries in the region (Biermayr-Jenzano, 2016).[12]

Also, women are not only represented in local markets as individual traders, but they can be active at market outlets through rural producer's organizations (RPOs), particularly women's RPOs, and community-based organizations (CBOs), (FAO, 2009). These options present access to strategic market niches (e.g., coffee, cocoa), such as fair trade for those who belong to cooperatives affiliated with the fair-trade organizational movement.

One example of how women engage in niche coffee product markets in Latin America is the case of Café Femenino, a women-own coffee brand from Peru. Most of its sales income has been directed toward enhancing the women's food security and improving sanitation and the nutritional intake of their families, while also running "kitchen projects" to enhance health and food safety at the community level. Café Femenino,[13] which started in 2004, today comprises branches in 7 countries in the region (Peru, Bolivia, Brazil, Colombia, Nicaragua, Mexico, and Guatemala) and has entered the market, providing coffee beans to coffee roasters across the United States, Canada, Australia, and the United Kingdom. The World Bank Gender and Agriculture Sourcebook (2011) also mentions the case of SOPPEXCCA,[14] an RPO composed of women who produce specialty coffee for the local and international market (USA). Based in Jinotega, Nicaragua, SOPPEXCCA developed the Sisters/Las Hermanas coffee brand from which part of the revenues are directed toward enhancing the wellbeing of participants' families and securing the women's access to and titling of plots of land where they farm. The Sisters coffee has produced a cascade effect and enabled the RPO to expand to several other productive activities (including beekeeping and organic honey production), with more representation for women in the local market.

Finally, the Mujeres 4 Pinos cooperative in the central highlands of Guatemala, managed by indigenous women of Mayan descent, was initially the women's branch of a larger local association, the 4 Pinos Agricultural Cooperative Union, engaged in selling produce to satisfy the local market and also neighboring El Salvador. The women took the decision to start a "women's cooperative" and seek support through a small IFAD grant, which allowed the 175 women farmers to enhance their skills, business, quality control, and marketing knowledge, producing snow peas and small carrots among other vegetables with a niche market. The women received training not only in marketing, but in nutrition-related issues, enhancing their family's food security and varied intake. Furthermore, the cooperative re-invested in infrastructure while providing direct employment for up to 450 women producers. Today, Mujeres 4 Pinos produces more than 20 different varieties of horticultural products, with a steady market in the United States. In 2016 at the "Stereotypes and Opportunities: Women's Economic Empowerment" Global Gender Summit, the Inter-American Developed Bank (IADB)

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[12] A regional study by FAO determined that Belize, Bolivia and Guatemala have developed sanitary guidelines and that those have being enforced at the country level, which has exponentially improved the produce and foods offered at open markets and food stall. All countries counted with direct support of the FAO country and regional office. Biermayr-Jenzano, Patricia (2016).

[13] Café Femenino was co-founded in 2004 by Peruvian women farmers alongside Organic Products Trading Co., The *Café Femenino* brand spans by 7 Latin American countries and has representation is Rwanda and Indonesia https://www.cafefemenino.com/

[14] SOPPEXCA is the *Sociedad de Pequeños Productores Exportadoras y Compradores de Café SA* in Nicaragua, Jinotega where 65% of specialty coffee is grown.

recognized the women for their life-changing efforts and making the jump from a local market-oriented “women’s association branch” to a successful trading enterprise that bears a brand name in trading specialty horticultural products, allowing for re-investment at the community level (IFAD, 2014).

Women’s participation at the market level as traders has historically leveraged their families’ and community’s wellbeing. The previous case studies quoted present several success stories where women not only pursued market engagement at the local level but followed a more ambitious role and sought more lucrative market options. Their participation as traders, along with supporting startup grants and investments, increased their knowledge in business and raised their incomes so that they could also invest in improving their food and nutrition security.

Women in Feeding Schemes

Women play a role in many feeding schemes (school programs, community gatherings, rituals) and also in street food vending, which is very prevalent in the region. In the Caribbean, there are well-documented examples of how rural women play a role and affect the adoption of nutritious meals through their participation in feeding schemes such as school meal preparation that have been implemented through several FAO country programs. In most island states, there are national school feeding programs in place, which have been transformed and reoriented in order to make them more accessible to the public while adopting healthier food choices. Beneficiaries of these programs include not only school children but also school personnel, youth groups, women’s groups, cooperatives, farmers’ groups, and in some cases these programs include aquaculture (fish ponds) activities, as in Guyana. These initiatives were implemented mainly through these countries’ ministries of Health and Education and received support from the FAO Zero Hunger Challenge (ZHC) Program. ZHC engaged in the development of Food and Nutrition Security policies and dietary guidelines at the country level, working with schools in order to encourage school personnel to recognize and utilize local indigenous products and food staples in school meals while exposing children and youth to agriculture through school gardens. These programs have been implemented in Guyana and Barbados, and expanded to St. Lucia, Dominica, and Antigua (FAO 2016a). In the case of Guyana (FAO, 2016b), the country working to replicate a successful South-South cooperation experience between Chile and Brazil on the development of a feeding program for children 2 years of age and a School Feeding Program for Hinterland Schools in several of Guyana’s regions, particularly those with large indigenous populations (FAO 2016b). The women’s involvement in these programs is on a volunteer basis, which is a further burden on their time. However, they participate in their children’s food preparation, monitor their development; at the same time, they receive nutrition education from health providers from the Ministry of Health. Finally, there is a component of the program that includes participation from the private sector (i.e., bakeries, the hospitality industry), as well as various state-owned food processing centers; this exchange has helped to mobilize the local economy and provide women with the income needed to reinvest in healthy food and other household needs.

This trend to engage in school and community gardens to improve food security and healthy food choices has been adopted in other countries in South America, particularly in Bolivia, with interesting results in the consumption of quinoa products. In Bolivia, new programs and regulations include the School Supplementary Food Program (ACE) and the passing of Law No. 622 on School Feeding in the Framework of Food Sovereignty and the Plural Economy. There have been recent changes in food-safety regulations in Bolivia; schools offering feeding options must now comply with a varied and healthy menu in urban and rural areas alike (Biermayr-Jenzano, 2016). In the Andean context, there is a complex interrelation between the cultivation of quinoa and the rearing of llamas (camelids), the management of ancestral agricultural knowledge translated in seed systems and the use of the Andean agricultural calendar. Even so, this vision of integrality of the system does not imply that there are no gender gaps in food accessibility. The role of local women has been central in the production, harvesting, and processing of this nutritious grain, which is included in a variety of meals served at the schools and community centers.

The FAO Project Integrated Agrifood System Quinoa-Camelids for the Promotion of Sustainable Community Family Agriculture in the Bolivian Altiplano[15] works in coordination with the Municipal Gender Unit and the Integral Legal Services (SLIM), the Secretary of Agriculture, Health and Food Safety Unit (SENASAG), and the Association of Health Promoters of Rural Areas (APROSAR), providing training in health management, basic nutrition, and food processing countrywide. Besides school feeding activities, groups of mothers at the municipality level have engaged in marketing the surplus to the local market rather than to the export-oriented Challapata Market[16] in Oruro. The Project also supported the inclusion of new dietary products based not only on quinoa but also amaranth and other Andean grains. This initiative has been supported by broader legislation through the Bolivia Supreme Decree 2310 establishing credits for women who develop activities in the productive sector, and also the Women's Group Productive Credit Options Act, a regulation benefiting women quinoa producers.[17] At the regional level, the Bolivian experience can serve as a model for its proposal to expand the supply of food based on quinoa, contributing to the improvement of the local diet and extending the permanence of children at school and parent's involvement in the adoption of healthy nutritious diets through the purchase of food products at the local level. This modality can be disseminated to other regions, stimulating local agricultural production and providing food with adequate nutritional standards and lower costs.

Women in Agrifood Industries

This section explores women's engagement and participation in agriculture and the food system as workers in agrifood industries. Women play many roles as workers—in fruit and vegetable packaging, in the cut flower industry, and also in fish, poultry, and livestock processing, to name a few. In general, men and women working in processing or postharvesting activities perform gender-differentiated tasks (World Bank 2009). Occupational patterns are also different for men and women, with men managing heavy machinery and using protective equipment (e.g., when spraying pesticides) and accessing training options in new technologies. Conversely, women are overrepresented in activities that do not include mechanized tasks and that are considered to employ unskilled labor.

In Latin America and the Caribbean, the number of people employed in agriculture has decreased in recent decades (Valenzuela and Gerhard 2012); however, the percentage of women employed in the agrifood industry has increased from 32.4% in 1990 to 48.7% in 2010 (FAO 2017). Most of the women workers are employed seasonally and for short periods of time; due to this employment pattern, they are commonly called *temporeras* (temporary workers) and have less job security and earn lower wages. The percentage of women *temporeras* employed in agribusiness varies across countries and subregions; however, they represent more than 50% of agribusiness workers in agro-industries in Bolivia, Brazil, Uruguay, and Peru, while in Cuba and Venezuela the percentages are much lower, at 30%.

The increase in women's participation in agro-industry is directly related to the growing export markets for niche products going to the United States and Europe. Ferm (2008) suggests that nontraditional agricultural export industries provide better work opportunities for women. This research looked at the asparagus industry in Peru and the cut flower industry in Colombia. Ferm (2008) concludes that agrifood industry opportunities benefit women in general, but that the conditions and wages are lower than those of men and that women do not have job security due to the seasonal nature of the work. In Peru, women represent 60% of workers employed in the asparagus industry, which has increased production more than threefold in the last five years (FAO 2017). In the Chilean fruit industry alone, women represent 50% of temporary workers and only 5% of permanent workers (IANGWE, 2011). A study conducted by ILO, FAO, and ECLAC (2012) in several Latin American countries (Argentina, Brazil, Chile, Costa Rica, Mexico, and Ecuador) on workforce participation in

[15] FAO Quinoa-Camelids Project (GCP / BOL / 049 / ITA "Integrated Quinoa / Camélidos Agrifood System, Promotion of Sustainable Community Family Agriculture in the Bolivian Altiplano") can be considered a pilot feeding program particularly implemented in the southern municipality of Uyuni and the communities of Río Grande and San Martín in the Municipalities of Salinas de Garci Mendoza and Colcha K, among others located in the Southern Altiplano of Bolivia, where women support school programs and participate in local value chain markets.

[16] Approximately 80 percent of the quinoa produced in the country is sold in the Challapata market, according to data from the National Association of Quinoa Producers (Anapqui).

[17] In Bolivia, since 2015, women who develop activities in the productive sector, including agriculture, in rural and urban areas may access loans under the *Crédito productivo grupal para mujeres* or Group Productive Credit for Women Act, established within the framework of the Trust for Productive Development, authorized by Supreme Decree No. 29145 of May 30, 2007.

the agrifood industry revealed various patterns of engagement with an increase in women's participation in Mexico to satisfy the US vegetable market and in Brazil, where women's participation is more concentrated in the grape industry. Only Ecuador and Costa Rica experienced a decrease in the number of women employed, with younger men entering the labor market in the former and coffee production dropping in recent years in the latter. In Argentina, seasonal workers in the lemon packaging industry in Tucumán Province and the tobacco industry in Jujuy Province are almost 100% women (FAO, OIT, CEPAL, 2012).

Other important agro-industries that provides job opportunities for women are fisheries and livestock. Gender roles are very entrenched in the fisheries industry worldwide, with men fishing at sea and women fishing from the shore while also taking responsibility for cleaning, processing, and marketing the catch and participating in processing plants. According to the FAO Atlas of Rural Women in Latin America (2017), in Chile the number of women employed in the fisheries industry increased from 7% in 2004 to 23% in 2014, and in Paraguay women account for 35% of fisheries workers. In Colombia, according to the National Fisheries and Aquaculture authority, women represent 13% of workers in the industry; of this total figure, 58% are engaged in work related to marine fisheries, and 42% work in inland fisheries (e.g., river, ponds).

The FAO's 2012 "State of Fisheries and Aquaculture and the National Aquaculture Sector Overview" provides insights into the roles and contributions of women in the aquaculture sector in countries worldwide (FAO; 2012a), stating that "in Jamaica, approximately 8–11% of fish farmers are women who own and/or operate so-called fish farms; and in processing plants, women dominate the workforce" (FAO, 2012b). Women have a prominent role in postharvest, processing and marketing of fish, although their labor is underestimated economically, and "their contributions are often considered informal and rarely remunerated" (FAO, 2009). In the case of Cuba, women workers constitute 27% of the aquaculture workforce, "interestingly 19% account for intermediate and higher education as technicians and 11% have at least attended higher education institutions" (FAO, 2012a). Other tasks that women perform in the fisheries industry include collecting mussels and participating in shrimp farming and crab fishing.

The fisheries industry is one of the most rapidly growing industries worldwide and represents an entry point for women's employment in most countries. However, women are subjected to depressed wages and a lack of training opportunities, and according to FAO (2009), "without training and storage technology, many women traders are unable to keep fish fresh, and suffer considerable post-harvest losses." These compounding factors keep women as low earners with few possibilities to climb the ladder to access better wages and leadership roles (FAO 2017; CEPAL 2009).

Finally, the livestock industry represents perhaps one of the most flexible options for women, who can rear small animals from home and participate in the value chain as processors. At the global level, 70% of ruminant meats and 90% of milk is produced through "mixed systems," along with a third of poultry meat and eggs (FAO 2009; Costales, Pica-Ciamarra and Otte, 2007). As in fisheries, participation in livestock production is gender segregated, with men taking care of larger livestock and women playing an important role in poultry production of eggs and meat (FAO 2011; Guèye 2000) and in dairy production (Patil and Babu, 2018; Tangka et al., 2000).

The poultry and other meat processing industries are important employers across Latin America and the Caribbean, particularly for women. In Paraguay, women make up 22.6% to 26.7% of workers in activities such as animal slaughter and meat processing and packaging of cold cuts (República del Paraguay, 2011), and in Cuba, women represent 38.1% of the poultry industry (Wright, 2009). Still, animal product processing is generally considered a male-dominated industry. A reason for the "masculinization" of this industry is the heavy lifting and physically demanding tasks required. *The Agro-industrial Handbook for Safety Practices in Mexico* (2012) stated that "heavy lifting of raw material should be done by two men when the container is over 50 kg (110 pounds), while for women the maximum allowed is 20 kg (44 pounds)." Moreover, pregnant women are not allowed to engage in these industrial activities because of the risks involved (Secretaria del Trabajo y Previsión Social Gobierno de México 2012). Livestock processing follows the sexual division of labor that has been identified in other subsectors.

There is still a dearth of information on women-specific rules of engagement in livestock processing and their participation at the industrial level, including product market chains (FAO 2011). The steady increase in consumption of meats and eggs in Latin America, as in other world regions (Asia), presents a potential market for the industry, and for women, a way to participate as wage earners (Patil and Babu 2018; FAO 2017) with a positive impact on their households' incomes.

Women in Informal Food Systems as Street Vendors

Women working as informal street food vendors are a common sight in most large urban settings in Latin America. Street food vendors populate markets, transportation terminals, parks and recreation centers, and even school grounds or areas not far from people's jobs. In recent decades, growing numbers of people have been purchasing food at informal food markets or from street vendors, because people are having to travel longer distances to get to work and preparing food takes precious time away from their job-related workloads or household chores (FAO 2011; Rodriguez et al, 2017; Pennacchiotti, 2000; Arámbulo et al., 1994). This form of food provision is particularly important for low- and middle-income urban dwellers. In the informal sector, women have taken the lead in the preparation and sale of the pre-cooked or ready-to-eat foods offered at the markets in Latin America and other regions including South Asia and Africa (Isara et al., 2017, Alves da Silva et al., 2013; Marras and Ag Bendech 2016).

The vast supply of fresh and semi-processed products is also part of the growing number of value chains of agricultural products easily accessible locally and even regionally (FAO 2016). The organizational aspect of these value chains includes multiple actors that develop specific roles throughout the planting and harvesting of the crops, transforming them into primary products (such as flours and oils) and transporting and marketing these products until they reach their intended market. Given the importance of the women's participation in each stage of a food value chain, as well as their role in contributing to public health while offering safe and healthy foods (Rodriguez, J. et al, 2017), it is necessary to understand in detail their roles in any niche of a given value chain. Women also contribute knowledge about local foods, which can be supplemented and enhanced through training, education, and certification options for the vendors to offer healthier and safe food choices rich in fresh and nutritious options. Despite the importance of women's participation in these "chains" and the positive impact in their personal economy, there are a number of issues that have jeopardized informal food offerings, including recorded poor safety records, a nutritional imbalance of foods sold (starchy foods and meats), and the informality that characterizes these vendors (Rodriguez Moreno et al., 2017; FAO Discussion Forum 2014, Arámbulo et al., 1994).

Related to the nutritional imbalance among street foods is the consumption of undercooked or raw food when there are few available healthier choices of micronutrient-rich foods such as vegetables and fruits. This has a direct impact on the increased rate of overweight and obesity. Several studies on agricultural and livestock food products sold informally as part of given chains (Crespo and Mancero, 2012) determine that women have a high and active participation in certain activities or niches of the chains (Pietrobelli and Rabelloti 2006, Rubin et al., 2009, Rubin and Manfre 2012, Terrillon 2011), influencing the social, political, and commercial relations of those involved in the informal food sector (Marras and Ag Bendech 2016; Humphrey and Schmitz 2001). The analysis of women's participation in value chains and integrated agrifood systems in the informal sector offers important entry points for policy interventions, contributing to a healthier and enabling environment aimed at the improvement of the overall food and nutrition security at the local level for those who rely in these informal outlets to access their daily food intake.

An interesting factor that helps to shape informal food vending and street food offerings is the sociocultural and ethnic background of the vendors. Some examples of women informal food vendors in Central America include Garifuna women in Belize, with their unique offering of "cassava bread," which is sold as a snack or supplement to cooked meals offered at food stalls in the local markets. The San Ignacio Market in Cayo District is the largest Agricultural Market in Belize, with a growing number of informal food vendors offering precooked local foods (e.g., breads, tamales, pupusas) and beverages made from a variety of fresh and local produce, mainly cassava (FAO 2016). Furthermore, the consumption of cassava and plantains, as snacks or side dishes, has increased in the informal sector as tourism is booming across the coastal towns of Belize (from Hopkins to Placencia) and even in more urban locations (Belize City, Dangriga, and San Pedro in the Keys District). In Belize, informal food selling has become a steady source of income for women across the country in the districts of Stann Creek, Toledo, Belize, and Cayo. It is important to mention that the street food vendors receive guidance, education, and support from the Belize Agriculture and Health Authority (BAHA), including trainings in food safety procedures to informal vendors, who are overwhelmingly women (Biermayr-Jenzano, 2016; FAO 2016).

Similar patterns were recorded in Colombia and Guatemala, with the sale of *arepas* (sweet corn dough topped with cheese) and corn tortillas, respectively, across these countries (FAO 2016). These food products tend to be supplemented with cooked meats, cheeses, and other starchy products, though with few vegetable options. Conversely, there are more fruit and grains sold as beverages by women street vendors at informal outlets in Colombia, including star fruit and orange juices, oatmeal-based drinks (barley), *champus* (a mix of corn and fruits), and other sugary desserts, depending on seasonality. This is the case of the *Platoneras*[18] women, most of them of Afro-Colombian descent; the women get together in informal groups, buy fruits in bulk, and sell a variety of cut fruits including granadilla, guanabana, mangos, avocados, and particularly "peach palm" (locally called *chontaduro* or *pejivalle*). The production and consumption of peach palm strongly appeals to the taste of the Afro descendant diaspora in this country (from Barranquilla to Cali). Other examples of informal food vendors from Bolivia and Peru include women offering a variety of quinoa dishes (Biermayr-Jenzano, 2016) like soups, cakes, *alfajores* (pastry), *pasankallas* (a sweet popcorn-style snack), and *salteñas* or *empanadas* (meat pies) cooked by the women at street stalls and open markets. Bolivia has greatly improved its safety regulations and procedures for providing basic extension education, information, and training opportunities as well as obligatory ID cards and registration to street vendors at the municipality level, which has improved safety standards across the country.

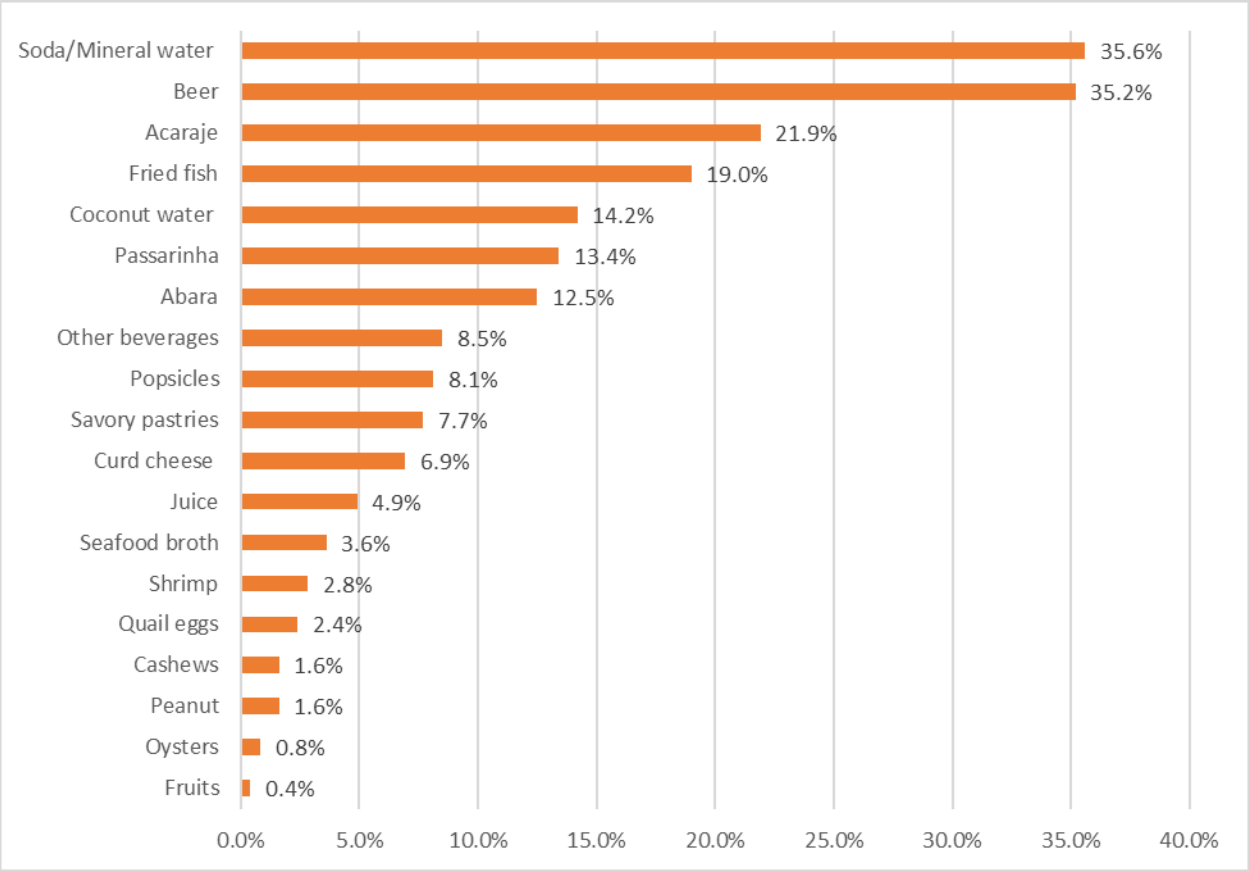
While most of the studies about access and consumption of street foods have focused on urban or peri-urban settings, Alves da Silva et al. (2013) conducted a study in 14 coastal areas and beaches in Bahia, Brazil, surveying 247 food vendors of whom 55.9% were women who reported working for an average of 8 to12 hours and even more during weekends. The women's participation in selling foods on the beach increased the family income threefold, taking the minimum wage into account. Approximately 61.6% of all vendors (both male and female) sold prepared foods, supplementing their food sales with other items such as sodas, soft drinks, bottled water, and beer, which was sold at almost the same rate as bottled water (see Figure.2). Food offerings included fried fish, fried *passarinha*,[19] fried *acarajé,*[20] and various types of cakes but few options of fruits and vegetables. The study found that 80% of the vendors handled food and money simultaneously and that only 38% of perishable food items were kept in coolers or containers, all of which affects the safety and health conditions of the food sold. The authors did not explicitly address the implications of a healthy diet for human health, but it is easy to infer that regulations and health education are needed to improve the choices, and consequently the health, of those who regularly purchase food from these informal food outlets.

[18] In Colombia, women fruit street vendors are called "Platoneras" as they carry their products in large dishes or "platos" on their heads. The women most of the times belong to the Afro Colombian diaspora, represented from coastal Barranquilla to the Valle Del Cauca and Cauca Departments.

[19] *Passarinha* is a typical meat dish prepared from bovine tripe or spleen deep-fried in soybean or palm oil.

[20] *Acarajé* is a dish of cooked and peeled beans that are made into a ball and then deep-fried in palm oil.

Figure 3: Distribution (%) of vendors with respect to the type of food/beverages sold at beaches in Salvador, Bahia, Brazil.



Source: S. Alves da Silva et al. / Food Control 40 (2014) pp. 81

Health Initiatives Pertaining to Street Foods

In general, it is important to consider the risk of street foods' being contaminated, mainly through incorrect handling. The World Health Organization (WHO) devoted its 2015 flagship report "How Safe Is Your Food? From Farm to Plate, Make Food Safe" to raising awareness about food safety, including meals purchased at informal markets, and it developed key messages to be shared across informal and rural settings, making it easy to comprehend and use.[21] Among the messages and guidelines developed, the most widely used is a manual presenting "five keys points"[22] for achieving a safer food program, taking into account that "foodborne diseases—especially those caused by bacteria, viruses, parasites and fungi—are preventable, and education in safe food handling is a key measure for prevention, including to contain antimicrobial resistance."

The aim of these guidelines, field tested in Belize, Guatemala, and El Salvador, is to prevent foodborne illness and poor nutrition through outreach programs directed toward rural women and other growers and handlers of fruits, vegetables, and fish, presenting general safety issues and easy-to-follow guidelines (WHO 2015). The campaign targets those who usually do not have access to training or food safety education, despite the role they play in the elaboration of the food, such as rural women, who are also the most likely to share their knowledge. Another initiative aiming to close the gaps in

[21] See "The Five Keys to Safer Food Programme" at http://www.who.int/foodsafety/areas_work/food-hygiene/5keys/en/. This manual for growing safer fruits and vegetables promotes understanding of the links among the health of humans, animals, and the environment, and how failures in good hygienic practices in one sector can affect the others (WHO, 2006).

[22] The WHO's five keys to safer food are to (1) keep food clean; (2) separate raw and cooked foods; (3) cook food thoroughly; (4) keep food at safe temperatures; and (5) use safe water and raw materials.

food safety and facilitate the sharing of information is INFOSAN, a joint effort between FAO and WHO that promotes information exchange and the adoption of interventions to protect consumers. Presently, this network has 186 member states.

While “street foods” and their impact in the informal economy have received increased attention, most studies have focused on income generation, vendor’s empowerment, aspects of food safety and regulations, along with implementation of regulatory policies. Few studies have taken an in-depth look into the effect of foods sold in non-formal settings and the relation to the increasing rates of overweight and obesity. This is an area of study that can have important gender implications to understand possible points of intervention to improve the choices of foods offered in the informal sector, particularly considering that the trend to rely on street foods across urban settings in Latin America will not decrease any time soon.

Women and Time Use

Latin America and the Caribbean has seen a record number of women entering the labor force in the last 20 years (Notva and Wong, 2017, Katz, 2003). Urbanization, access to education, reproductive choices to delay marriage and pregnancies, along with male migration, have all contributed to higher representation of women in the labor force. In the case of Central America and Mexico, male migration to the United States from rural or peri-urban areas has left women in charge of the household while also participating in the local labor force, whether in full-time or part-time jobs, to sustain themselves and the family.

Although similar patterns were observed in other world regions, mainly Africa, the Latin America and Caribbean experience has received less attention. Women’s increasing participation in the labor force has increased their time “out” of the house, pushing them to perform multiple tasks to provide for their families. This is particularly true of food provision and cooking responsibilities, with implications for the adoption of nutrition-dense foods and a healthy diet. Johnston et al. (2018) state that “time [is] needed for food production, purchase, preparation, child feeding and child-care,” and Komatsu et al. (2018) emphasize that “women have a higher burden of unpaid work, and unpaid and paid work often take place simultaneously.” With the women’s participation in the job market at the same level and even higher than men’s in certain countries (this is highly variable across the region), the time allocated to household chores and food preparation has shrunk as people look for faster, convenient, and easy food options, which at times means compromising on optimal choices and instead choosing processed foods. Cutler et al. (2003), cited by Anauati, Galiani, and Weinschelbaum, state that food preparation is highly influenced by the division of labor. To explain the high increase in calorie intake since the 1960s, they point to the industrial and mass preparation and marketing of food, which has been accompanied by low prices, for a period of almost 50 years.

Johnston et al. (2018) also assert that time use and agricultural work affect poor and nonpoor households very differently. In general, poor women who work in agriculture can provide more varied dietary choices than can other nonpoor women, such as urban or peri-urban dwellers. The authors argued that the key aspect here is the recognition that lack of time in domestic work (e.g., cooking) directly affects dietary diversity. Hence, women’s domestic work and cooking time are positively correlated with a more diverse diet, emphasizing that their socioeconomic and poverty status should also be taken into consideration. In this sense, rural women and their longer involvement in agricultural chores is correlated with a positive impact on dietary diversity, while the opposite is true for nonpoor women and those located in urban settings.

Harris (2014) calls for a better understanding of the complexity of women’s time use while paying attention to the number of “trade-offs” they face in terms of personal nutrition and other health-related issues. Harris emphasizes that gender plays a direct and indirect role due to changes in labor patterns and women’s role in child-rearing, which in turn affects human capital composition in agriculture.[23] Considering this trend and the increased demand for healthy diets, it is important to take into consideration points of policy intervention and the gender component that permeates the food system, along with sociocultural patterns observed across most countries in the region.

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[23] Harris (2014) states that women’s health is impacted more than men’s by high-level agricultural chores conducted along with their household chores and that women are suffer from seasonal energy deficiency and weight loss at specific times, such as during harvest time, which coincides with low food stocks

A recent study in Brazil determined that gender inequality and insufficient time for women to take care of themselves play a pivotal role in the increased rates of overweight and obesity, which affect quality of life (Pinto et al. 2018). The study found that a larger proportion of women (34.5%) than men (23.8%) reported insufficient time to invest in personal care and leisure. This trend was associated with women working over 40 hours a week, without the support of full-time in-house help.[24] Conversely, those with additional help were 18.1% less likely to be obese. Working women with no children, meanwhile, were less likely to be obese, regardless of whether or not they had household help. Factors such as the length of the work week and an increasing or excessive number of chores can play a role in weight gain in addition to contributing to other sources of stress.

The need to understand decision-making power about food consumption at the household level is another important component to consider, as men and women adopt different options according to their exposure, knowledge, and experience related to food choices. In this regard, the International Center for Tropical Agriculture (CIAT) in Colombia is currently working to gather information about intrahousehold food and nutrition decision making by engaging men and women at the household level. This ongoing research in Guatemala is carried out under the umbrella of the Innovative Methods and Metrics for Agriculture and Nutrition Actions (IMMANA), supported by the UK Department for International Development (DFID).[25] The research aims to shed light on men's and women's labor preferences related to time invested in household activities and agricultural production. Information collected from 250 households in the municipalities of La Union, Nuevo Progreso, and La Reforma include a well-represented selection of producers from different ethnic backgrounds (white, mixed-race or mestizo, and indigenous peoples) as well. While the research does not explicitly survey the results of time invested in the preparation of healthy diets and the direct impact on overweight and obesity patterns, it delves into how the local diet (tortillas, rice, and beans) can be enhanced and the ways in which men and women play a role in the adoption of food options, and particularly how those dynamics affect the household feeding habits.

This case clearly shows that there is a need to further investigate the impact of time usage in women's lives and how activities such as shopping for food provisions, cooking, cleaning, and sanitation—which take up a significant portion of women's time—restrict their ability to adopt other healthy choices. The importance of gaining an understanding of how the dynamics of "time use" affect women's lives can offer new avenues to prevent the spread of unhealthy food options with a potential risk to increase the rate of overweight, obesity, and other NCDs while redirecting efforts to adopt food variety and healthy habits.

FINDINGS AND NEXT STEPS FOR FUTURE RESEARCH

Through the review of the literature on food systems, overweight and obesity, and gender in Latin America and the Caribbean, several themes or areas of study were identified as possible areas in which more data and analysis are needed, as well as potential policy interventions to improve the existing linkages in the adoption of healthy diets. The review also looked at how food choices and access to food (at home, at the market, or in informal settings), along with women's time invested in preparation, can lead to beneficial outcomes.

Another point clearly highlighted by several authors is that the overweight and obesity epidemic in Latin America must be seen not only as a personal problem but as a system failure. Even though the consumer's behavior is central, issues like aggressive marketing, food insecurity, lack of consumer education, and lack of time to invest in food preparation must be considered, as they are all interconnected.

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[24] Pinto et al. found interesting links between the relationship of time and health for those participating in the study, ascertaining that the lack of time dedicated to personal care and leisure due to multiple household demands is directly associated with a higher prevalence of overweight and obesity among women working 40 hours a week or more than among those who have external or additional on-site help.

[25] The DFID-funded IMMANA research in Guatemala also includes participation from the University of Florida, Catholic Relief Services (CRS), Harvest-Plus, and the University of Wageningen. See https://immana.lcirah.ac.uk/blog/2018/08/28/only-tortillas-and-beans-%E2%80%93-insights-fieldwork-guatemala acceded Oct 25, 2018.

In each step of the way, women play a vital role in providing healthy food options to their families; however, as women's participation in the job market has increased exponentially, factors such as time constraints and easier access to cheap foods and prepacked options that are high in fat and sugar mean that such foods are being purchased and consumed more frequently to the detriment of other fresh and healthy food choices. Interestingly, important differences were associated with the work women perform in rural versus urban and peri-urban areas, and these differences shed light on possible pathways for improving nutrition. The suggested areas for further research detailed below provide a possible road map for enhancing the understanding of gender implications in the food system and women's role across the agrifood industry.

Implications for Time Use of On-Farm and Off-Farm Labor

Rural women tend to take care of farm productive activities and at times also take off-farm jobs (i.e., they become wage earners) without any relief from household burdens or the "care economy." They invest a great deal of time in the production of agricultural goods and because of that, the family diet and variety of foods are enhanced at a high personal cost. Conversely, urban women dwellers who do not participate in agriculture but also face time constraints find themselves with food choices that are less than healthy but cheap and easy to prepare. This is an important contrast to be considered when designing policies and extension education initiatives in both rural and urban settings. A comparative study of time usage in rural and urban areas will help in understanding patterns of physical engagement and constraints leading to the adoption of healthy food systems and nutritional diets.

Women' Participation in Rural Producers' Organizations and Other Producer Networks

Studying women's participation in rural producers' organizations (RPOs) across the region as well as in bigger networks, such as the fair-trade movement, will show how access to organic and fair-trade premiums improves household wellbeing and access to better diets for workers. Research avenues can include both entry points and constraints on rural youth participation in agrimarkets as well as existing strategies to include youth in agribusiness and entrepreneurship opportunities that will lead to the creation of new food-industry businesses.

Informal Food Vendors in the Overall Diet

Informal food vendors or street food across the region can provide points of entry to promote, design, and implement healthy diets while also preserving an important source of employment. If properly regulated, street food can be a win-win opportunity for women's employment and public health. Some potential initiatives might include a rewards system for the vendors who enroll in education opportunities and complete registrations and health accreditations. Regarding the wide variety of food offered under this modality across Latin America, a number of regional studies focusing on the employment implications and identification of healthy options and potential health hazards can be developed while also evaluating aspects of food diversity and taste across cultures.

Marketing Strategies and Their Impact on Children and Youth

This review found that the prevalence of overweight and obesity is connected with current time-demanding lifestyles, the market penetration of unhealthy foods (even in remote areas), and the increase in cheap and convenient foods. Further research is needed to propose policy interventions at the local and even at the regional level supported by the Latin American Parliament (PARLATINO), along with the gender implications that pervade the food system. In that sense, nutrition-sensitive agriculture strategies and value chains of nutrition-dense food options can be promoted along with consumer education. Educational programs on nutrition and health that are delivered at schools and backyard and community gardens might facilitate the participation in urban agriculture of youth and women as well as the promotion of food fortification and biofortification. Policies aimed at promoting the adoption of fresh foods produced locally (family farm)

and nutrition education in academic programs is of the utmost importance. Finally, efforts should be made to regulate aggressive advertising directed at children.

Investment in Reliable Data Systems

Special consideration should be given to improving data analysis and designing survey questionnaires that shed light on men's and women's access to assets, choices, and decision making in primary agriculture (Doss, 2014; Johnston et al., 2018). Gender analysis must be also extended to issues such as women's use of time and the nutrition disconnect. It would be very relevant to analyze the coverage and use of the Women's' Empowerment in Agriculture Index (WEIA) across Latin America to increase the number of countries included and expand the applications of the index. The incorporation of indicators, with explicit nutrition objectives at the program/project level and in the design of policies, will help to assess impact and make interventions more effective and sounder. Investment in data collection and analysis, both qualitative and quantitative, to close gaps and highlight areas where policies are lacking are needed to enhance public health awareness and sound interventions. Also, a database/repository of existing policies at the regional level can provide models for other countries that might be exploring adopting legislation aimed at reducing the triple burden of malnutrition.

Women's Labor Patterns in the Food Industry

The food industry allows for different forms of work engagement across production, transformation, and marketing of products. Women's labor patterns as part-time and/or seasonal workers in the food industry and in market outlets are common in the region. This area of study will shed light on patterns of employment and how seasonality can be connected to patterns of food access and consumption across the industry. It would be useful to conduct a comparative study of women's time use in fruit and vegetable packaging, the poultry (meat and eggs) and dairy industries, rearing small livestock (goats, pigs, and rabbits), and aquaculture and fisheries because this particular type of research can also provide information on the barriers and safeguards to influencing policymaking that supports better health and nutrition as well as access to social services. This research can delve into women's participation in existing local and/or regional markets and patterns of time use, which will provide insights into how seasonal or informal work schedules might enhance or conflict with healthy food preparation and eating patterns for the women themselves and their families.

The topics explored in this review are important areas for future in-depth research—including gender interventions and the role of women as workers, homemakers, and as decision makers in relation to their diet and food choices in various settings. In addition to program and policy interventions for reducing overweight and obesity in Latin America, it is important to adopt gender indicators (qualitative and quantitative) to track and improve the performance of such interventions, focusing on the overall food system and women in particular.

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