

Food insecurity: Hidden hunger or food poverty in Europe and developing countries

At the World Food Summit in Rome in 1996, the members states committed to halve the world hunger by 2015 in developing countries (United Nations, 2006). The commitment was based on Food and Agriculture Organisation (FAO)'s definition of food security, as reported by Barret (2002), as "when all people, at all times, have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life." Currently, more than **one billion people are overweight** whilst almost **800 million are undernourished** in developed and developing countries, respectively. Factors affecting food insecurity in developed countries include adverse weathers, hidden hunger, nutrient-dense foods, life style, and physiological changes.

European countries have regular weather disasters such as lots of snow, floods, or heat waves which affect farming and food security. European countries import fruits and vegetables either from other EU member states or all over the world. In order to improve food security, Europe is using innovative technologies such as (1) green houses to create conducive environmental conditions for horticulture and livestock farming; (2) hydroponics and aquaponics for both commercial and home food production; (3) aero-farms for vegetables; (4) laboratory meat and milk production; (5) food printing; and (6) genetic engineering. Depending on the technology used some of the foods might be expensive, thereby beyond the reach of most of the general EU population. For a lot of these food production technologies, not much has been published in terms of nutrient content, therefore there is potential **hidden hunger** from consuming food products with limited nutrient content. Europe is playing catch up on insect livestock farming, as an alternative protein source for all age groups but most popular with the athletes. Regardless of the high protein content, the insects have very low EU consumer acceptance. Genetic engineered or modified foods have a lot of negative publicity and low preference. Europe uses biofortification and food fortification to improve nutrient security. Regardless of these technologies, Europe still struggles with food poverty as a result of food insecurity (Nyambayo, 2015).

Socio-economic status and low level of education in Europe have led to low household incomes, less disposable income to afford healthy food, and food insufficiency (Nyambayo, 2015). The FAO has designed a **food insecurity experience scale (FIIES)** to determine the severity of food insufficiency in households. The scale ranges from mild food insecurity where people will be worrying about how to buy food, compromising on quality and food variety, reducing quantities or skipping meals, through to severe food insecurity where they are experiencing hunger (Ballard et al, 2013). The paradox of food insecurity or hidden hunger, in the countries which have high gross domestic product and purchasing power parity, might be due to but not limited to (a) uncertainty of food availability which might induce overeating to stock for future scarcity, (b) families living in areas with low quality food shops, (c) cheaper cost of nutrient-dense foods due to less disposable income missing on healthy options of fruits and vegetables (Walker et al, 2012). A family with food insecurity will end up being obese. High obesity rates and prices of quality foods are some of the drivers of **Food and Nutrition Security in Europe (Figure 1)**. In the EU, there are increasing trends of obesity and use of food aid due to food poverty which could mean hidden hunger in Europe. The Health Eating Index, which measure diet quality, can be used to determine the long-term impact of food insufficiency in Europe.

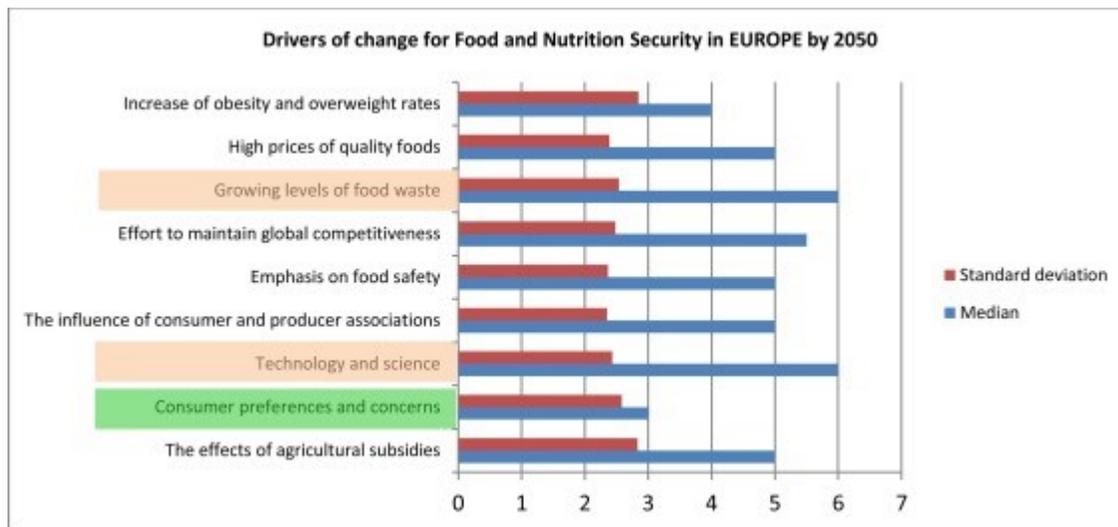


Figure 1: Food and Nutrition Security in Europe, projected for 2050 (Moragues-Faus, et al, 2017)

Improvements in healthcare systems have seen soaring high numbers of aging population in EU member states. Age is a risk factor for cardiovascular diseases, stroke, and diabetes which can affect muscular movement causing dysphagia and loss of taste. These physiological changes affect food preferences of specific texture, taste or flavour causing poor quality of life and weight loss in the elderly (Cassens et al, 2009). Severely dysphagic elderly people require food thickeners and flavour enhancers to increase satisfaction. Specially prepared foods are expensive for the elderly with limited disposable income. Hidden hunger or food insecurity has been reported (Kim-Mozeleski et al, 2018) as a risk of smoking among low-income groups. Sato and co-workers (2009) reported smoking as associated with worse taste thresholds (loss of taste) for four tastes (salt, sour, sweet and bitter) for both men and women, thereby affecting their food preferences and ultimately food security.

There is food insecurity and hidden hunger among different age group populations in Europe. Extrinsic factors (adverse weather, food supply chain, and socio-economic status) and intrinsic factors (physiological changes including aging, dysphagia, and loss of taste) need to be considered when curbing food insecurity among families.

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