ABSTRACT

The global burdens of obesity and cardiometabolic diseases (diabetes and cardiovascular diseases) are large and rising. Unhealthy diets – those high in calories, saturated fats and refined carbohydrates and sugars, but low in fruits, vegetables and fiber – are strong modifiable risk factors for cardiometabolic diseases, but less is known about how societal factors influence these risk factors at the individual level. The main objective of this dissertation was to expand upon knowledge of the role of societal drivers of cardiometabolic disease in the United States (US) and globally. I focused primarily on food and agricultural policy as it relates to risk, and more specifically on food availability and agricultural subsidies. I conducted three studies to (1) quantify associations between national diabetes prevalence and societal factors using global, macro-level data from the World Health Organization, World Bank, and Food and Agricultural Organization (FAO), (2) derive a methodology to estimate an individual’s consumption of foods derived from subsidized food commodities (and the value of these calories in US agricultural subsidy dollars) and examine associations between this consumption and cardiometabolic risk factors using nationally representative data on 18-64 year old respondents to the National Health and Nutrition Examination Surveys (NHANES) 2001-2006, and (3) using food production data from the FAO, investigate whether, at the global level, there is actually sufficient supply of fruits and vegetables to meet population nutritional needs for preventing cardiometabolic disease (i.e., 5 servings of fruits and vegetables per person per day). The global macro-level analysis showed that higher availability of sugar and sweeteners and animal fats as a percentage of total calories is associated with higher diabetes prevalence, while higher availability of fruits and vegetables is associated with lower diabetes prevalence. The NHANES analysis found that more than half (56.7%, an approximate value of $11.72 per person per year) of calories consumed in the US are derived from subsidized food commodities, and that younger, less-educated, and poorer individuals tend to consume diets with significantly higher proportions of subsidized commodities. Moreover, individuals who consume a diet with a higher proportion of calories from subsidized food commodities have worse cardiometabolic health outcomes – specifically, higher risk of obesity, abdominal adiposity, elevated lipids, and dysglycemia. Subsidized food commodities consumed in the form of meat products (for example, grains used as feed instead of other uses, as well as the livestock subsidy) appeared to be the main drivers of the associations for obesity, abdominal adiposity, and elevated lipids. Lastly, results from the third study highlight a 22% global gap in supply of fruits and vegetables relative to need, and this ranged from 58% in low-income countries to no gap in high-income countries. These results underscore the importance of aligning food and agricultural policies with nutrition recommendations and population needs. Recommendations for future studies are proposed.
PUBLICATIONS


BOOKS AND BOOK CHAPTERS


ABSTRACTS AND PRESENTATIONS


