

Towards Sustainable Food and Nutrition - View Points from Early Career Researchers

Sangeetha Shyam¹ and Harriet Elizabeth Smith²

In rapidly developing Asian economies, populations are moving from undernourishment and famine, to obesity and overconsumption, referred to as nutrition transition (NT). Yet simultaneously, with observed widening equalities, undernutrition and its health impacts co-exist with over-nutrition. Healthcare systems of developed countries are struggling to cope with diseases of over-nutrition, while literature suggests the re-emergence of nutritional deficiencies such as scurvy and rickets in these areas.¹ While nutritional concerns have temporal and population-specific dimensions, maintaining healthy eating behaviour remains a global challenge. In this editorial, we outline some of the challenges and emphasise the need to collaboratively address them, towards making food and nutrition systems and healthier eating sustainable.

Current Challenges to Sustainable Food and Nutrition

Mixed messages and issues of trust

Food is basic to human existence, and nutrition research findings are frequently translated into practice by the public with or without professional guidance, since they are within the scope of individual agencies.² Health experts are therefore wary when unresolved technical debates in nutrition science such as those on the levels of dietary fat or carbohydrate composition, are played out in the public arena. Additionally, studying associations of single nutrients or food with health outcomes, whilst academically engaging, are limited in terms of their translatability. Irresponsible and out-of-context coverage of these findings by the media result in dissemination of conflicting messages such as “coffee can be good for you” and “also bad for you”. With the explosive growth in free and accessible online media, combined with the post-truth era media’s consumption of sensationalism, unconventional nutrition research and inaccurate reporting of results are more likely to find its way into people’s homes. Evidence suggests that these contradictory messages can cause confusion and may lead people to doubt even sensible messages (e.g., messages encouraging fruit and vegetable consumption

and exercise).³ It is therefore increasingly challenging for nutritionists and dieticians to encourage consumers to have healthier diets.

Existing food environment and the impact of nutrition interventions

Food-systems encompass all sub-systems and processes involved in food production, storage, transport and trade; food transformation; and food retail and provisioning. They define the food environment within which an individual exerts their food choice, based on personal preference for taste, price, convenience and perceived health value.⁴ Thus, an individual exerts his or her personal priority or preference within the constraints of what is available and easily accessible. Food industry and voluntary or statutory regulations they operate within determine the nutritive value of foods available in an environment.⁵ Healthy diets are not always economical, tasty, easily available or convenient to be accommodated within busy lifestyles. Furthermore, they may not be aligned to the focus of existing food-systems. It is therefore not uncommon, that nutrition interventions aimed at improving public health and wellbeing have had limited impact.⁶

Sustainability of the current food-systems

21st Century advances in food production and agriculture have been instrumental in reducing undernutrition, despite the booming population growth that has occurred.⁷ While this development is impressive in terms of its socioeconomic and health impacts, it has come at a heavy cost to the environment. Globally, agriculture accounts for up to 30% of greenhouse gas emissions, and makes substantial demands on land (land usage, soil fertility etc.) and water resources.⁸ The environmental degradation in turn negatively affects food production. Researchers using modelling have predicted declines in tropical cereal production and global fruit and vegetable supply, largely due to biodiversity declines associated with crop pollination and soil quality.^{7,9} Food and nutrition systems will therefore have to address

¹Division of Nutrition and Dietetics, School of Health Sciences, International Medical University, MALAYSIA

²School of Earth and Environment, University of Leeds, UNITED KINGDOM

Address for Correspondence:

Dr. Sangeetha Shyam, Division of Nutrition and Dietetics, School of Health Sciences, International Medical University, 126, Jalan Jalil Perkasa 19, Bukit Jalil, 57000 Kuala Lumpur, MALAYSIA

E-mail: SangeethaShyam@imu.edu.my

the expected increase in demand for food supply in the face of potential unsustainability of the current food production systems.⁷

Increasing food demand raises an urgency for deeper understanding of nutrition and its interaction with planetary health. Emerging areas of research are examining the impacts of dietary patterns on global greenhouse gas emissions⁷, and consequentially promoting the adoption of a “less meat” diet.⁹ Other efforts at reducing the environmental cost of food involve encouraging consumption of locally grown food and minimising food wastages.⁹ However, these efforts may be insufficient given the spiralling rate at which climate change, soil degradation and water scarcity threaten to change our food environment. Thus “business-as-usual” in food-systems, may no longer be acceptable, because it may no longer exist.

The food-system also interacts in complex ways with local and global environments defined by national agricultural and economic policies, trade agreements, cultural expectations, urban-rural divides and migration. The complexity of today’s food-systems calls for newer and more holistic approaches to plan relevant and sustainable nutritional interventions. The narrow engagement adopted by traditional food and nutrition initiatives may be limited in its ability to deal with challenges of future.⁸ Sustainable nutrition can be assured only when the diets are nutritious, healthy, economical, socio-culturally appropriate, environmentally friendly and support long-term adherence.⁹

The Way forward for Sustainable Food and Nutrition

Professional presence in the public domain

To counteract misinformation currently prevalent in the public domain, access to reliable and evidence-based nutrition information that is consistent, relevant, attractive and easily comprehensible, should be provided. Professional bodies and academia could spearhead such efforts, develop a strong public presence,

and actively engage with media to ensure appropriate and balanced reporting. The choice of media to deliver these nutrition promotion messages needs to look beyond the traditional public talks and print media. There are model initiatives⁶ that show that web-based dietary interventions can be successfully scaled up to deliver cost-effective and efficient public health interventions. Economical and effective ways to reach individuals and populations may therefore involve embracing digital technologies, including the use of television and social networking platforms that have a greater reach among today’s younger generations.

Personalising nutrition

Since one “nutrition message fits all” is increasingly being questioned, tailoring of nutritional interventions may improve their effectiveness.⁶ This emphasises the need for funding and generating local evidence. As this need moves towards precision nutrition, it becomes necessary to deploy a wide range of approaches including data analytics. While commercial DNA kits to prescribe personalised diets are available globally, more academic research in this area to validate these methods and processes becomes important and urgent. The impact on health outcomes and cost-effectiveness of personalised nutrition solutions offered to individuals and population sub-groups needs evaluation. If improved outcomes result from such measures, higher compliance to such dietary recommendations and sustainability of these interventions would be added an advantage.

Transitioning to more sustainable food-systems with a multi-disciplinary approach

The complexity of food-systems’ influence on eating behaviours, and consequentially population nutrition and health, requires that research and decision-making in nutrition requires a wider skill set and the ability to collaborate with multidisciplinary teams. There is a need to adopt systems-approach in nutrition to study the interactions of interest such as those between nutritional status, food environment (including food production,

processing, distribution, consumption, and policy), migration and town planning. Understanding these interactions can help create sustainable approaches that simplify making healthy choices.¹⁰ without placing the onus on individuals to show restraint while making these decisions. Better understanding of the effects of food production on planetary health will provide opportunities to mitigate or reduce these impacts, which will become increasingly important as demand for food continues to rise.⁸ Thus, understanding the food-systems environment and their interaction with population nutrition and health requires a multidisciplinary approach involving a range of stakeholders, such as agriculturalists, environmentalists, policy makers, urban planners, food manufacturers, distributors, economists and data scientists and citizen scientists. There is a real need for these efforts to coalesce and synergise, which requires agreement between experts, and a culture that allows multidisciplinary teams to learn, share and evolve with the ultimate goal of sustainable health promotion.

With an overarching aim to shape sustainable and conducive food policies, academicians, scientists, policy makers and interested citizens could galvanise their efforts by forming advocacy groups. Through creating awareness, such advocacy groups would help improve public trust and support for nutrition promotion. This may result in the empowerment of the involved communities who identify their food and nutrition problems and solve them with professional help. If committed and impactful, such advocacy groups would help make sustainable food, nutrition and health a reality.

These are exciting times for nutrition research. Nutrition is cognisant of issues of trust and the need for reform in nutrition research² and hence is well-placed to circumvent them. However, increasingly complex nutrition challenges posed by variations in individual response, urbanisation, migration and the significant changes in planetary health, may require adoption of more robust and holistic approaches that are not necessarily conventional. Nutritional guidelines must also be based

on local research. These measures necessitate building capacity and an appreciation for multidisciplinary collaboration among food and nutrition professionals to understand these new dimensions.

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