A case for refining the WHO Global Strategy on Food Safety: perspectives from India

The WHO Global Strategy on Food Safety,[1] which is now a decade old, focuses on three principal lines of action: to advocate and support the development of risk-based, sustainable, integrated food safety systems; to devise science-based measures along the food production chain; and to assess and manage food-borne risks and communicate information. In this strategy, food safety is considered largely as a supply-side issue—reliant on producers, retailers, handlers, and regulators. Issues on the consumption side also affect food safety, which relates to how consumers acquire, cook, store, and consume foods. WHO's strategy does not fully address consumers' behaviours that also introduce risks. Taking India as an example, we put forth a perspective that seeks to prioritise both sides of the issue.

WHO's *Five Keys to Safer Food* campaign is used to educate food manufactures and handlers in several countries about food hygiene. The campaign promotes personal hygiene, adequate cooking, avoidance of cross contamination, safe temperatures for food storage, and avoidance of foods from unsafe sources.[2] Such campaigns offer little protection unless the cultural, behavioural, and contextual forces that shape specific practices—from food purchase to preparation and consumption—are addressed. In India, as in many countries, diverse food habits, hygiene practices, and centuries-old traditions coexist with the changes introduced by globalisation. With such conditions and scarcity of resources, promotion of food safety becomes a daunting public-health task.

Since 2006, the Food Safety Standards Authority of India has led efforts to promote food safety, tighten food laws, and harmonise these laws with international standards and quality-management systems. These efforts need to be complemented with interventions focused on practices at the household level, because a substantial proportion of foodborne illnesses come from home kitchens. In a 2006 nationwide study, 13% of households reported foodborne illnesses in the previous fortnight.[3] These illnesses might relate to practices at the individual or household level, which are affected by cultural factors (eg, cooking practices) and structural factors (eg, availability of safe fuel, water, etc; figure).

In India, semiprocessed primary agricultural produce and raw materials are procured from the market before they are further processed and made suitable for cooking at home. In many rural homes, ingredients are bought loose in small amounts; adulteration is thus a major safety concern. About 11% of all foods sold in India are estimated to be adulterated,[4] such that it is not generally thought of as a problem and most people remain indifferent even to deliberate adulteration.[5] Improved awareness and individual empowerment to hold regulators accountable for enforcement of rules against adulteration is needed.

Foods in Indian homes are usually stored in covered containers and consumed within a day of preparation.[5] Many households (about 80%) cook food twice a day, and more than half serve food hot; many reheat leftover foods.[3,5,6] Fewer than 10% of Indian homes have refrigerators,[7] and hence campaigns about cross-contamination, reheating, or thawing might be of little relevance. Even without powered refrigeration, many Indians practise traditional ways of storing leftover foods, including storage in a cool place, in water, or in a porous dish with water on its lid. Food is often cooked in small quantities to avoid storage problems.[5,6,8] The safety implications of common practices for food storage and consumption need to be better understood so that associated risks can be effectively communicated and feasible alternatives encouraged.

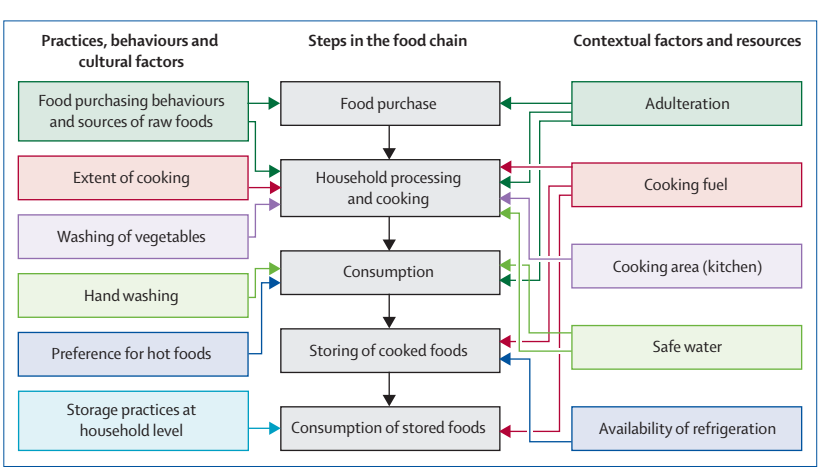

Figure: **Consumer practices, behaviours, and cultural and contextual factors that affect food safety**

Hand washing is relatively routine in India, and is often customarily done before handling or consuming of food.[3] Normative hand washing does not, however, guarantee safety of the foods handled, because a great deal of hand washing is symbolic and done without soap.[3,5,8] These customary practices can be strengthened by encouragement of universal access to and use of soap, which can reduce the risk of diarrhoeal diseases by 40–42%.[9]

In many Indian homes, the domestic hearth is an area of sanctity and tends to be located next to the area of worship.[10] However, with an estimated 37% of Indians living in poverty, most homes do not have a separate designated kitchen, such that living, cooking, and eating happen in a common place within the house (31%) or veranda (courtyard; 28%).[3,5,11] Many households (76%) cook with solid fuels such as firewood, coal, or cow-dung cakes,[3,12] which release smoke that leads to lacrimation and nasal discharge, posing a food safety hazard. Migration towards cleaner fuels is hindered by factors of affordability, availability, and accessibility.[13] Similarly, availability of safe drinking water is beyond the control of the common consumer.

Many challenges faced by low-income countries to address food safety concerns are multidimensional. To motivate self-directed changes in practice at the individual or household level, the public need to understand the reasons to alter established practices and be provided with the means and resources to do so. Strict regulation and compliance with global standards for manufacturing and distribution are necessary—but not sufficient—to address food risks. Unless systemic changes are brought about and enabling environments are created, perceptions of helplessness could cause consumers to think that food safety measures are not relevant to them. Therefore, WHO, through its Global Strategy for Food Safety, should aim to address the entire food production-consumption system with culturally sensitive and adaptive approaches.

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We declare that we have no conflicts of interest. We thank the Indian Council of Medical Research for supporting the fellowship programme of GMSR, and the Johns Hopkins Bloomberg School of Public Health for hosting the fellowship and providing an opportunity for interdisciplinary work on social, behavioural, and communication aspects in food safety.

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