


Understanding food safety challenges through a gender and social lens in low- and middle-income countries

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Abstract

Food safety is crucial for ensuring the quality and safety of the global food supply. However, the gender and social dimensions of food safety are often overlooked and undervalued. Women, who are primary caretakers in households, play a vital role in food preparation, storage, and consumption. Gender inequality can result in limited access to resources and information needed for safe food handling and storage, increasing women's vulnerability to foodborne illnesses. Cultural practices, education, and income levels also impact food safety. These factors can contribute to disparities in food safety and increase the risk of foodborne illnesses among certain populations. Promoting gender equality, cultural sensitivity, and addressing income inequality are essential to ensure safe and secure food for all. Addressing these issues can lead to a more equitable and sustainable food system.

KEYWORDS

food safety, gender inequality, low- and middle-income countries, social dimension

INTRODUCTION

Food safety is an important aspect of public health that affects all individuals, regardless of their age, race, gender, or social status. The issue of food safety has gendered and social dimensions that cannot be ignored. However, food safety is not a gender-neutral issue. For example, because of social norms women in households may not have access to foods that contain the right amount of nutrients, such as meat, which can negatively affect a woman's health and the health of the baby during pregnancy.¹ Women play a significant role in ensuring the safety of food in households, as they are often the primary caregivers and food handlers. Although they do not always possess adequate food safety

knowledge and skills, the safety of food consumed by their families is dependent on basic food safety knowledge and practice.

Impact of gender stereotypes and social norms on food safety management and legislation

The role of women in food safety can also be observed in milk production. In Ethiopia, women are responsible for the safe production of the milk as they form the first link in the milk supply chain. Despite this, gender and social norms and rules limit their access to the necessary knowledge and technologies for the sufficient

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production of safe food.² Additionally, women are disproportionately affected by food insecurity and malnutrition due to social and gender-related issues.

Being the first link of household food chain in Ethiopia, women where their responsibilities include taking care of cattle also put them at risk of infection from pathogens transmitted from livestock to humans.

Gender stereotypes and social norms have limited women's participation in decision-making processes on food safety policies, although their experience could greatly assist in the development of food safety regulations. Women are often underrepresented in leadership positions, and their voices are not adequately heard in the development and implementation of food safety policies.³ As a result, food safety policies are not always gender-sensitive, and women's specific needs and concerns are often overlooked.⁴

In addition, social and cultural factors also play a significant role in the effectiveness of food safety management systems and legislation. Factors such as age, beliefs, and cultural practices, which in turn affect access to necessary practices and technologies can impact food safety practices in developing countries. Low- and middle-income countries are mostly impacted by contaminated foods due to international trade and long supply chains, lack of necessary laws to protect rural lands, for example, from contamination, which affects the quality and safety of food.⁵

Study gap

Lack of access to food safety tools and inadequate knowledge of food safety practices are common challenges faced by disadvantaged individuals. Despite the important role that women play in food safety, there is a significant study gap in understanding the intersection of food safety, gender, and social dimensions, particularly in low- and middle-income countries. Existing research has mostly concentrated on the biological and technical aspects of food safety, frequently overlooking the social and gender dimensions. This research makes a unique contribution by addressing this gap through a comprehensive investigation of how gender disparity and societal factors influence food safety practices. It emphasizes the importance of gender-sensitive food safety policies and practices, and it makes specific recommendations to empower women while also addressing the social and cultural barriers that affect food safety in these regions.

Research objectives

This perspective piece aims to explore the gendered and social dimensions of food safety, emphasizing the need for gender-sensitive food safety policies and practices. It will also discuss the social and cultural factors that impact food safety practices in low- and middle-income countries and provide recommendations to address these challenges. In addition, this article will also examine the challenges faced by women in the food industry and provide recommendations for empowering women in food safety practices and decision-making processes.

GENDER DIMENSION

Women's role in food safety

Food safety is one of the important areas of public health because it affects all individuals irrespective of age, race, gender, or social status.⁶ However certain gender is deemed as an important player when it comes to matters of food safety. Women's role as primary caregivers and food handlers in many households is often associated with the safety of food. They deal with all food handling processes starting from preparation, cooking, and serving, ensuring food is safe for consumption. Additionally, women are often associated with the informal food sector, particularly in low- and middle-income countries (LMICs), many women are involved in street-vended food businesses, a part of the informal food sector that puts them at a higher risk of exposure to foodborne illnesses.⁷ The Food and Agriculture Organization (FAO) defines street-vended foods as "ready-to-eat" foods that are prepared and sold by vendors in public places such as streets, sidewalks, and parks, and are typically consumed without any further cooking. Street foods are enjoyed and consumed in various parts of the world due to their popularity.⁸ These foods are often not regulated, and women may lack access to resources such as training and infrastructure, to ensure food handling practices hence putting them at risk of exposure to foodborne illnesses.

According to empirical data from Nigeria, more than 60% of street food vendors are women, and these vendors usually lack basic food safety knowledge and access to sanitation facilities, resulting in high rates of foodborne disease.^{9,10} Similarly, a cross-sectional survey¹¹ in South Africa revealed that a majority of the street food vendors, specifically 61.3%, were females who had not attended any food safety training. Women dominate the dairy sector in India, especially in rural regions, yet they face major challenges to getting sanitary milk production training, resulting in high levels of milk contamination.¹²

Empowering women in food safety

Gender stereotypes and social/ cultural norms can contribute to women's exclusion from decision-making processes on food safety policies.¹³ In ensuring food safety and protecting public health, food safety policies are crucial. Gender stereotypes and social norms have limited women's participation in decision-making processes on food safety policies in several ways including underrepresentation in important leadership positions,¹⁴ traditional gender roles that have excluded women in decision-making, cultural barriers, and gender biases. The FAO established a gender policy for the period of 2020–2030 that both women and men have equal voice and decision-making power in rural institutions and organizations to shape relevant legal frameworks, policies, and programs.⁴ To ensure food safety, it is important that women's expertise is included in policy decisions, this can create food safety policies that involve the needs of all members of society.

Several studies have reported that food handlers lacked adequate knowledge about the risk of food contamination. Women are mostly

food handlers, hence the need to empower them in safe food handling practices. Addressing these gendered dimensions of food safety involves empowering women in food safety practices, this includes providing training programs on food handling practices, food hygiene, and safety¹⁵ and creating awareness of regulatory requirements and guidelines for food safety. These programs can equip women with essential skills and knowledge in ensuring food safety as primary caregivers and food handlers. In addition, women can be empowered by giving them leadership roles in the food industry and regulatory bodies. Empowering women in food safety practices and decision-making processes can help ensure that they are enlightened on foodborne illnesses and how to prevent them as primary caregivers and food handlers. For example, in Ghana, training programmes aimed at female street food vendors considerably reduced the prevalence of foodborne infections by improving their knowledge and food hygiene procedures.¹⁶

SOCIAL DIMENSIONS

Food safety is important to prevent foodborne illnesses, which affect approximately 1 in 10 people around the world.¹⁷ Although food safety management systems and legislation are placed for ensuring food safety, their effectiveness can be impacted by social and cultural factors, especially in developing countries.¹⁰ Food safety in Vietnam has been impacted by various factors, including the consumption of raw duck and blood, dependence on friends and family for food safety information, and the use of sensory evaluation to assess food safety.¹⁸ In Bangladesh, the hot and cold theory is practiced. It is believed among consumers that cold food is given when a person has a hot ailment, which could cause foodborne illness when foods are mixed wrongly.¹⁹ Another common practice is washing raw chicken before cooking, which is observed in Malaysia, Iraq, and Egypt. This method was applied to remove the slime on the chicken or was passed on from family members. It is recommended by food safety organizations to avoid washing chicken and meat to avoid cross-contamination.¹⁹

LMICs are mostly impacted by contaminated foods due to international trade and long supply chains.¹⁷ Low-income individuals may not have the right food safety tools like separate cutting boards or thermometers for ensuring food is cooked to the right temperature. Moreover, poorer residents may have to travel long distances to supermarkets to buy groceries and when the storage conditions are not maintained, the microbial load may increase depending on the region's temperature.⁵ In the Vietnam case, the disadvantaged individuals did not have adequate kitchen tools and believed their cooking conditions were normal due to lack of knowledge.¹⁸ High-income countries invest in safe practices at the beginning of the food supply chain, as the costs of prevention are lower compared to the costs of a foodborne outbreak. Additionally, the government enforces strict food safety regulations, and some campaigns to promote food safety knowledge and practices in these countries. However, in some LMICs, the demand for food safety among consumers is low and poor

consumers are not willing to pay for it. There is limited regulatory enforcement and inspection that takes place, including limited private laboratories and auditing firms.²⁰ In Northern Ethiopia, monthly income affected food safety practices among street food vendors. As the monthly income decreased for the vendors, food safety practices also decreased. It is stated that a country with good economic status would invest in food safety and hygiene practices.²¹

The social dimension of food safety encompasses a wide range of factors that go beyond individual behaviors and practices. It includes cultural practices related to food safety, such as traditional methods of food preparation and consumption, as well as broader social factors that impact food safety management systems and legislation, such as food distribution structures, long supply chains, and access to resources.^{22,23}

Cultural beliefs and practices can affect food safety in different regions. In some Asian cultures, raw or undercooked seafood is a delicacy. In Japan for example, dishes like sushi or sashimi are popular but this can increase the risk of foodborne illnesses by pathogens like *Vibrio* bacteria and so require strict quality control to ensure safety.²⁴

Traditional methods of food preservation vary widely across different African cultures. Traditional food preservation methods such as drying, fermenting, or smoking in many African cultures, have been practised for generations. Although these methods have been reported to enhance the shelf life of food, they also carry potential risks if not properly done.^{25,26} For example, poor fermentation can lead to growth of harmful microorganisms, and cause foodborne illnesses. An example is the fermentation of cassava in many African communities, this process can produce toxic compounds if poorly handled.²⁷ Fermenting fish to create "lutefisk" is deeply ingrained in Scandinavian cultures. This involves soaking fish in lye and then rinsing it. Although this method is generally regarded as safe if done correctly, improper preparation can lead to foodborne illness.²⁸

Some cultures have communal eating practices, where they share food from a common plate or pot. A notable example is Ethiopian "injera" sharing.²⁹ In Ethiopian culture as well, a traditional practice known as "gursha" is common, this involves handfeeding one another as a sign of affection.³⁰ Although this practice fosters a sense of togetherness, it can also be a vector for foodborne illnesses if people involved do not practice proper hand hygiene.

In many regions and cultures, food safety at local markets is impacted by cultural practices. Open market is common practice in developing countries, these markets often lack adequate sanitation and refrigeration, thus increasing the risk of food contamination.³¹ For example, street food vendors in some African countries may lack access to proper facilities for food preparation and storage, leading to potential food safety issues.

To address cultural factors, educational programs need to be structured in a way that's accessible to every individual, for instance factors related to low-income individuals must be considered when evaluating a food safety program.⁵ In the above study related to Vietnam, it was suggested that food safety education can be promoted in schools or through social networks and games, targeting children and young adults, which would also allow parents to gain

knowledge of food safety while interacting with their children. Food safety programs can also be part of lifestyle changes such as starting parenthood or during pregnancy.¹⁸ According to Zanin et al.,³² foodborne diseases occur due to poor handling of food. Training needs to be implemented among food handlers to improve knowledge, attitudes, and practices in food establishments. Overall, food safety awareness must be structured based on different populations and be available and easily accessible to every individual to allow them to take control of food safety and prevent foodborne diseases.

IMPLICATIONS FOR FOOD SAFETY POLICIES AND PRACTICES

Gender equality and inclusion have been key areas of focus in development policy and practice for several years, with the United Nations Women emphasizing the importance of resolving gender inequality concerns and advancing women's empowerment in achieving all 17 Sustainable Development Goals (SDGs).³³ Recently, the importance of gender equality and women's empowerment in enhancing the food system has gained increased attention from groups.^{34,35} The food system is influenced by shocks and vulnerabilities that have different impacts on men and women, as well as by systemic gender disparities.³⁶ Structural gender disparities, gendered shocks, and vulnerabilities also influence the way that men and women perceive the drivers of food systems, including value chains, the food environment, and consumer behavior. The interaction between gender dimensions and food security is controlled by legislative norms and customary rules, which affect food safety policies and practices.³⁷

Social and cultural obstacles often restrict access to food for everyone, with women being particularly vulnerable to food insecurity when the State fails to address their gender-specific needs, preferences, and priorities. The International Human Rights Framework provides for the right to food, which gives those who possess this right the ability to hold the State accountable. States have a duty to ensure that policies are properly articulated and have defined functions, functionalities, and funding to ensure that everyone has access to safe food, regardless of gender,³⁷ particularly in matters of public health and food safety.

Social and cultural norms define and perpetuate differences in how women and men engage in, access, and benefit from opportunities and resources. Women are often limited by societal norms that prevent their empowerment and full participation in domestic or communal activities and value chains.^{38,39} Women are typically responsible for home chores, childcare, food preparation, and other unpaid care duties, whereas men are viewed as the household's financial providers and decision-makers. In rural agricultural contexts, women may also perform household chores on their husbands' agricultural plots, without receiving payment for their labour.⁴⁰

Gender disparities in the food system are complex and often intersect with factors like race, ethnicity, socio-economic status, education, and cultural identities.⁴¹ For example, women of color may face compounded challenges, as they are more likely to encounter

discrimination and have limited access to resources. Socio-economic status also plays a significant role in food safety disparities. Women from low-income backgrounds may struggle to access safe and nutritious food due to financial constraints.⁴² This economic vulnerability exacerbates the gendered dimension of food safety, as women are often disproportionately affected by poverty. Cultural and religious practices can influence food safety behaviors. To address these issues effectively, it is crucial to recognize and understand how various factors intersect to create unique challenges and opportunities for different groups.

Policies and advocacy are vital tools for tackling gender disparities in the food system.⁴³ Gender-sensitive food safety policies are crucial, for instance, policies could include provisions for targeted education and training programs for women in food handling.² Economic empowerment policies such as access to credit, land, and resources, can help women invest in safe food practices. Educational programs for women should be accessible, culturally sensitive, and literacy levels considered. They can help women acquire the necessary knowledge and skills to ensure food safety.⁴⁴ Policies that address inequalities in access to resources, such as clean water, safe cooking facilities, and refrigeration, are essential. These resources play a significant role in food safety practices, particularly in low-resource settings. Encouraging community-based and grassroots initiatives can empower women to advocate for their food safety needs. These initiatives can address cultural and local challenges, ensuring that policies are contextually relevant.⁴⁵ Furthermore, global cooperation also plays an important role in promoting gender equity in the food system.⁴⁶ The goal is to create inclusive, safe, and equitable food systems that consider the diverse needs of women and their intersectional identities.

Empowering women is crucial for enhancing the food system, improving well-being, food security, income, and health, and enabling strategic life decisions within food systems. This empowerment process should extend beyond interventions to achieve lasting change. Women's agency, disparities in resource access and control, gendered social norms, and current rules and governance all impact how men and women participate in and benefit from food systems, leading to differences in outcomes.⁴⁷ To promote women's empowerment and gender equality in food systems, it is important to amplify women's voices and take their preferences into account in agricultural solutions, including technology design and implementation.^{48,49} Gender inequality in disadvantaged communities is interconnected with other challenges impacting communities, such as poverty, health, well-being, access to clean water and sanitation, decent work, and climate change, and should be addressed within this broader context to support food security efforts.⁵⁰

CONCLUSION

Food safety is a critical issue that impacts individuals and communities worldwide. However, gender and social dimensions can impact the ability of individuals and communities to access safe and nutritious food. Women and girls are often responsible for food preparation and

cooking in many cultures, and they may be more vulnerable to food safety issues due to limited access to education and resources on safe food handling practices. Additionally, women may face greater economic constraints, limiting their ability to purchase and prepare safe and nutritious food for themselves and their families.⁵¹

Social dimensions, such as poverty, race, and ethnicity, can also impact food safety. People living in poverty may have limited access to safe and nutritious food, which can lead to health issues and foodborne illnesses.⁵² Furthermore, racial and ethnic minorities may experience discrimination and systemic barriers that prevent them from accessing safe and healthy food.

Recognizing and addressing these gender and social dimensions of food safety is crucial for designing effective food safety policies and interventions that ensure everyone has access to safe and nutritious food. This requires a collaborative effort from governments, NGOs, and communities to provide education, resources, and support to those who are most vulnerable to food safety issues. Strategies may include improving access to resources and education, promoting gender equality, and addressing broader social inequalities that impact food safety outcomes.

By taking a holistic approach that considers the social and gender dimensions of food safety, we can work towards ensuring that everyone has access to safe and nutritious food. This will require ongoing research and collaboration to develop effective policies and interventions that address the complex factors contributing to food safety issues.

CONFLICT OF INTEREST STATEMENT

All authors declare that they have no financial or non-financial interests that are directly or indirectly related to the work submitted for publication.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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