

## Review

# Gender-specific roles and needs in food-health security

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People rely on foods to provide energy and nutrients to sustain life and to ensure health. In the entire chain from acquiring foods to ingesting them, women contribute in unique ways to the food system. Although foods or nutrients requirements for both sexes are biologically similar in many aspects, women go through more complex life-cycles than men and may experience greater risk of nutrient deprivation due to their role to bear and to rear off-spring. Therefore, women and their offspring are particularly vulnerable to food scarcity and to poor dietary quality. On the other hand, the female genome, partly through sex hormones delays the development of many chronic diseases which result from the modern affluent lifestyle. The inherent biological roles of men and women and their socially constructed roles may interact with one another, affecting the health security of each gender, their families, and the well-being of the societies in which they live. Historically and contemporarily, women in general are socially and politically more underprivileged than men. The inequality which women have faced has jeopardized not only their health and that of their female children, but the well-being of all. In developed countries and in more and more developing countries, equal opportunities for education are promoted. Recent research indicates that women have a greater tendency than men to engage in healthy behaviours when empowered with health knowledge. Risky health-related behaviours, including poor food choices, are more often practiced by men and warrant more public health attention.

**Key Words:** gender, inequality, food, health, security

## INTRODUCTION

Foods are not only required to maintain life, but their quality signifies the socio-economic status (SES) and potential health advantage of people in various ways, not least by gender. Since the earliest times, food patterns differ by gender in terms of quantity and type with men, the hunters and women, the gatherers of foods.<sup>1,2</sup> Gender inequality has been linked to poverty, hunger, and poor health.<sup>3-5</sup> There is much to be gained by proactive consideration and engagement of women in both food and health security and to learn from how men and women respond to a changing world and environments.

## HISTORICAL ROLE OF WOMEN IN THE FOOD SYSTEM

Historically, women contribute at each step of the food system. They gathered food (seeds, roots, leaves, berries, inflorescence, insects, eggs), fished with traps and nets for fin-fish and crustaceans, collected shellfish (middens are ongoing testimony to this and often the only remnant of communities), grew foods in gardens and raised animals for family and for income, bartered and traded food in markets, carried them, stored them, and cooked them, not to mention the burden of work in fuel collection falling disproportionately to women.<sup>6</sup> It is noteworthy that women were probably the first technocrats in food, textiles and communications.<sup>6</sup>

As wife, mother, and members of society, they have not only primary responsibilities to rear children and to

distribute foods to family members, but also contribute to social and economic development. If women can adequately perform their productive, reproductive, and social roles, the wellbeing of their entire family is safeguarded.<sup>4</sup> Society, with its food and health systems, is further enriched and secured when women can take their place as entrepreneurs, technologists, professionals and leaders.

## GENDER INEQUALITY

Women have limited access to education, information, assets, and decision making process historically. Inequality has severely jeopardized women's ability to provide adequate foods, care, health and sanitation related services to themselves and family members, especially their female children and limited their contribution to the societal development.<sup>7,8</sup>

According to World Bank's statistics<sup>9</sup> in no region of the developing world are women equal to men in legal, social, or economic rights. Today, only a few north European countries such as Denmark, Finland, Norway, and

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Sweden achieve approximate gender equality, where women represent around 50% of paid employment in non-agricultural activities and at least 30 percent of seats in parliaments or legislatures are held by women. Due to the efforts of the World Bank, other United Nations (UN) agencies, some governments, and various NGOs (non-governmental organisations), women's and girl's education and health levels have improved in most poor countries in recent years. By 2004, two thirds of the 181 countries with primary school data achieved gender parity in enrolment and the gender completion gap narrowed to 5 percent from 15 percent in 1991.<sup>10</sup> But progress is still lagging on improving women's economic opportunities. The empowerment of women is a major United Nations (UN) development goal.<sup>11</sup>

Under-investing in women limits economic growth and slows down poverty reduction. Increases in women's productivity and linked to earnings to lower household poverty. For example, Indian states with higher female labour-force participation are precisely those with faster economic growth which lifts people out of poverty. Taiwan implemented 6 years of mandatory education for both boys and girls since 1945 and this has been extended to 9 years in 1968.<sup>12</sup> Gender gap in enrolment rates to elementary school and high school was reduced immediately, respectively, after each monumental change. This process of empowering women paralleled the take-off of the Taiwanese economy.

No matter whether it is labour markets, agriculture or finance, there are good examples of how industries and economies draw benefits from women's participation. In 1978, Bangladesh's garment sector contributed only USD 1 million to the total export revenue, where an estimated 83 percent of workers were women in this industry. By mid-2006, the annual export from this industry increased around 8000 fold and made up 75 percent of the total foreign exchange earned by the country. Moreover, when credit, especially microcredit,<sup>13</sup> is provided directly to women, it has a significant effect on consumption expenditure, children's schooling and the female labour supply. In addition, the percent increase in expenditure and the repayment rates are higher for women than for men. Recognizing the high return of increasing women's economic opportunities, the World Bank Group, continuing their efforts to empower women, in 2007 launched Gender Equality as Smart Economics – a four-year Gender Action Plan (GAP). The GAP focuses on four key markets: land, labour, agriculture, and finance, and infrastructure.

### **IMPROVING FEMALE NUTRITION STATUS TO IMPROVE FOOD – HEALTH SECURITY**

In addition to women's contribution to labour markets and the economy, their role in food production, food preparation and child care is pivotal to the health of entire families and communities and yet their roles in these directions are often handicapped by poor nutritional status and by lack of research specifically directed to women's health.

### **MATERNAL LITERACY, ESPECIALLY FOR FOOD AND HEALTH**

There is a persuasive literature to show that maternal literacy is pivotal in community development and the role of maternal education and knowledge on food and health security in child and life-long health is apparent in various studies.<sup>3, 5, 14-16</sup>

### **THE MATERNAL-CHILD DYAD (UNIT), ITS CONTRIBUTION TO AND DEPENDENCE ON FOOD SECURITY**

The lasting health and security benefits which arise from the relation between mother and child during lactation and breast-feeding; with nurturing at least during infancy; and in learning throughout childhood have been acknowledged for more than a generation.<sup>8,17</sup> However, that this is possible depends on maternal food security, representing an intergenerational food-in-health security phenomenon.

### **MATERNAL NUTRITION, THE FETO-MATERNAL UNIT AND LONG-TERM HEALTH**

The findings by Barker and later others that low birth weight presages obesity, diabetes and cardiovascular disease when children are born into environments with plentiful food underscored the importance of maternal nutrition.<sup>18</sup> This hypothesis has proven robust<sup>19,20</sup> and there is increasing evidence that it applies to other health outcomes like cognition and mental health.<sup>21, 22</sup> Thus, the nutritional health of women has great consequence for not only her daughters, but for her sons, and, it seems, for her grandchildren and beyond.

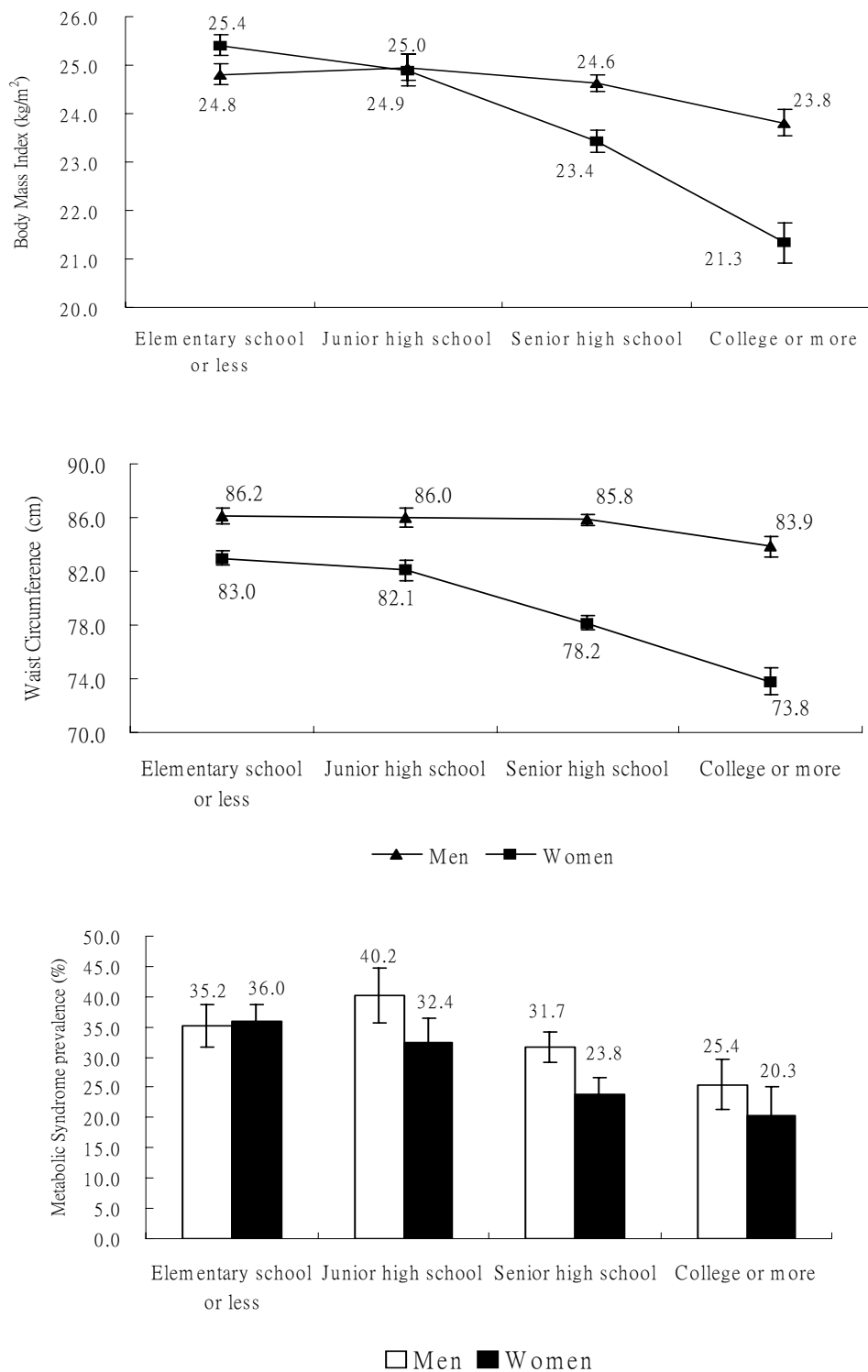
### **GENDER DIFFERENCE IN CHRONIC DISEASE PROFILE AND ITS NUTRITIONAL PATHWAYS**

Pre-menopausal and post-menopausal periods are two critical life-stages in women for which specific attention should be given to maximize and to safeguard women's health. Anaemia prevention can improve the quality of life during women's reproductive years. The reduction in risk of osteoporosis and cardio-metabolic diseases are critical for post-menopausal women.<sup>23</sup>

Overall, when the nutritionally-related burden of disease, like infections, anaemia, maternal deaths, obesity, diabetes, osteoporosis and cancer affects women, the ramifications in the family and community are often considerable, for example: HIV, growth retardation, fracture, mental health. It may be said that "If we ate today in accordance with how women developed our diet, and addressed the problems they have had, we would be healthier and more food secure".<sup>23</sup>

### **BETTER HEALTH KNOWLEDGE AND OUTCOMES IN EMPOWERED WOMEN COMPARED TO MEN**

When education opportunity is made equal for men and women, women excel in school performance. In more and more countries, women now obtain more than half the college degrees.<sup>24</sup> The trend towards more female college students is wide-spread in the Asia-Pacific region including mainland China, Hong Kong and Taiwan. It is well established that people with higher education levels are better off in most health parameters.<sup>25</sup> The Nutrition and Health Survey in Taiwan (NAHSIT) (2005-2008)<sup>26</sup> has found (Figure 1), in the era of excessive poor quality commercial foods and an obesity pandemic, that adult



**Figure 1.** Age-adjusted mean values of body mass index, waist circumference, and prevalence rates of metabolic syndrome by education levels, Nutrition and Health Study in Taiwan 2005-2008 (previously unpublished). Upper bar chart: body mass index ( $p$ -value for education\*gender interaction  $< 0.0001$  in an age-adjusted generalized linear model), middle bar chart: waist circumference ( $p$ -value for education\*gender interaction = 0.0021 in an age-adjusted generalized linear model), bottom bar chart: prevalence of metabolic syndrome ( $p$ -value for education\*gender interaction = 0.0003 in an age-adjusted logistic regression model).

women (aged 19 and above) with college education have much lower mean body mass index, waist circumference, and prevalence of the metabolic syndrome than those with lower education levels.

In contrast, in men, the obesity indices and prevalence of metabolic syndrome are associated with level of educa-

tion to a much smaller degree. NAHSIT is consistent with similar studies elsewhere which demonstrate that women empowered with health knowledge practice more health protective behaviour, while men exhibit more risky health behaviours. In a study of university students from 23 countries,<sup>27</sup> researchers found that female college students

were more likely than male students to report avoiding high-fat foods (46% vs 26%,  $p < 0.001$ ), eating fruit daily (47% vs 37%,  $p < 0.001$ ), eating high-fibre foods (40% vs 27%,  $p < 0.001$ ), and limiting salt (71% vs 68%,  $p < 0.001$ ). These phenomena are consistent across countries in different continents including those in Asia such as Japan, Korea, and Thailand.

### EXCESS CHRONIC DISEASE RISK IN CONTEMPORARY MEN

Life expectancy for men is on average shorter than that of women.<sup>28</sup> This results from a combination of higher infant mortality, more accidental deaths in young adulthood, and a higher risk of the major causes of death in middle-aged men than women at the same age. This observation of female advantage is relatively recent, since inter alia, maternal mortality with pregnancy, childbirth and incompetent termination of pregnancy were common and grossly shortened women's lives. Biological differences between sexes have been well documented. Female hormone and possibly a lesser degree of iron intoxication during the first few decades of adulthood on account of menstruation in women and excessive dietary intake in men have been implicated.<sup>29</sup> There are also remarkable gender differences in health-related attitudes, beliefs and food choices. Men rate many health behaviours less important than women. They are less interested in learning about foods, nutrition, and health and concerned about their weight or hygiene. Gender differences in behaviours and cognition are suggested to play a part in health disparity. It is not clear how men's interest in foods and health might be achieved in order to improve their health behaviours through prudent food choice. Suffice it to say at the moment that it is increasingly accepted that men play a greater role in household affairs, such improvement may benefit not only theirs, but their family's nutritionally-related health.

### BRINGING IT TOGETHER FROM A FOOD AND HEALTH POLICY VIEWPOINT

The food security of women affects not only their health, but that of their descendants and the community at large. It is clear that the role of women in both the food and health systems, and the importance of their literacy, requires policy attention in any locality.

### AUTHOR DISCLOSURES

Each author declares that there is no conflict of interest in regard to this paper.

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## 糧食與衛生安全中性別的角色與需要

人類依賴糧食提供能量及營養素來維持生命並確保健康。女性在整個糧食體系，從取得食物至食用的環節中，都扮演獨特的角色。雖然男女性的食物和營養素需求在多方面都很相似，但女性因為其孕育與扶養下一代的角色，會經歷較複雜的生命期，以及較大的營養素缺乏風險。因此女性和她們的下一代特別容易受到食物短缺和飲食品質不佳的危害；另一方面，女性基因體藉由女性賀爾蒙和一些可能體質因素延緩了許多現代富裕生活形態造成的慢性病的發展。男女性傳承的生物功能和他們在社會上所扮演的角色可能相互作用，影響各自性別及家庭的衛生安全與社會福祉。不論在史上或現代，女性一般而言居於社會和政治的弱勢。女性面對的不平等不僅不利她們自身以及後代女性的健康，也危害了全人類的福祉。現今已開發國家以及許多開發中國家，都不斷在提倡教育平權。近年來研究顯示，女性當具備有健康知識後，比男性更傾向於遵循健康行為。男性比較經常做危及健康的行為，包括不好的食物選擇，這一點值得公共衛生上較多的關注。

**關鍵字：**性別、不平等、糧食、健康、安全