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## Multidisciplinary approaches to address food insecurity and nutrition among youth and their families

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## **Multidisciplinary approaches to address food insecurity and nutrition among youth and their families**

Our aim in publishing this issue of JARC on nutrition and food insecurity is to understand the factors associated with nutrition and food insecurity in the U.S. and around the world; to elucidate the potential consequences of food insecurity on physical and mental health; and to raise awareness and identify solutions to address this complex issue. We also aim to encourage collaboration across disciplines in order to frame initiatives that reduce these threats to child health, well-being and success.

Food insecurity is defined as having inconsistent access to safe, adequate and nutritious food for an active and healthy life. Ranges of food security include low food security defined as reduced quality, variety, or desirability of diet with little or no indication of reduced food intake, and very low food security which is defined as multiple indications of disrupted eating patterns and reduced food intake. Although the United States is called the 'land of plenty', in 2014 there were 7.9 million children residing in food insecure households.<sup>1</sup> Consequently, households that have children are almost twice (19.2%) as likely to be food insecure as compared to households who do not have children (11.7%).<sup>1</sup> The rate of food insecurity for households with children prior to the recession that began in December 2007 was at 15.8%.<sup>5</sup> One year later, the rate increased by 30% to a prevalence rate of 21% and had not declined since.<sup>1,6,7</sup> With an increase in food insecurity, there has been an increase in food pantry use and participation in food assistance programs, such as the Supplemental Nutrition Assistance Program (SNAP) as a way to reduce food hardship.<sup>8</sup>

Food insecurity is unequivocally rooted in poverty and racial and ethnic disparities exist with black (26.1%) and Hispanic (22.4%) households being more likely to be food insecure compared to white households (10.5%).<sup>1</sup> In addition, single-mother households have the highest prevalence of food insecurity (35.3%) compared to households with other family structures,<sup>1</sup> and food insecurity is more prevalent among households with a non-citizen mother.<sup>3,4</sup>

The terms, "hunger" and "food insecurity" are sometimes used synonymously, although they have intrinsically different meanings. Hunger is conceptualized on an individual-level; whereas food insecurity is a more economically-driven measure, is at a household-level and includes the conditions leading to hunger such as lack of availability, accessibility and affordability of food. Availability indicates an adequate supply of food, while accessibility refers to a stable and continuous access to the food that is available. Affordability is an economic issue where the food may be

available and accessible, but not economically affordable to the households. Food insecurity, as applied globally to developing nations, is typically due to issues related to all three – availability, accessibility and affordability of food. However, in the U.S., food insecurity is multifaceted: although the food supply in the U.S. is abundant and stable, households experiencing food insecurity may live in food deserts. Food deserts are areas of urban and rural towns that lack access to fresh, affordable healthy foods through supermarkets and grocery stores. These areas of towns are usually populated with fast food restaurants, convenience stores, and liquor stores, and are often known as ‘food swamps’.<sup>9</sup>

There has been an increasing interest in the effects of food insecurity on health. Food insecure children and adults have generally low intake of more healthful foods, such as fruits and vegetables, and concurrently high intake of less healthful energy-dense nutrient-poor foods and beverages including those with added sugars, fats, and refined grains.<sup>10-12</sup> Fricke et al. and Kaiser & Spees across their studies reported that very low food secure households were most at-risk for low fruit and vegetable intake. Further, hunger-coping behaviors and experiencing physiological hunger symptoms was also associated with less daily intake of fruits and vegetables. Poor nutrition associated with food insecurity is of concern for the potential intergenerational effects. Grilo et al. describe how experiences of depressive symptoms were highly prevalent among adolescent food insecure mothers. Moreover, these depressive symptoms in turn predicted adverse birth outcomes. Among young children, food insecurity has been demonstrated to be associated with poor general health,<sup>13</sup> iron deficiency anemia,<sup>14</sup> and greater probability of being hospitalized.<sup>15</sup> However, Hernandez et al. found food insecurity to be negatively associated with percent body fat and obesity among Hispanic immigrant children. Although an association between food insecurity and obesity was not found among young children in this study, other studies have shown a high prevalence of obesity and cardiovascular risk factors are prevalent among adolescents.<sup>16-18</sup> More research to understand why food insecurity and obesity co-exist are warranted. Sattler & Bhargava examined the relationship between food insecurity and cardiovascular risk among adolescents and reported that food insecure adolescents were at greater risk of being exposed to preventable risk factors such as tobacco smoke compared to food secure adolescents. These studies underscore the fact that the relationship between food insecurity and health is complicated and can vary depending on various factors, including developmental stage, environmental factors, and other economic variables.

Aside from physical health issues, food insecurity is also related to mental health problems. It has been suggested that a way to improve child and family physical health and ultimately reduce food insecurity is to address the mental health needs of mothers. Rodriguez et al. describe how, in drought-ridden rural California, Mexican-origin parents prioritize paying bills and rent over food. Consequently, these parents reported stress, sadness, and feelings of incompetency in having to deny children's requests. Pinard et al., in a cross-sectional study among low-income households with children, demonstrated that expanding assessment of mental health and functioning beyond measures of depression is necessary. The use of a family functioning scale called CHAOS (Confusion, Hubbub, and Order Scale) had a stronger association with food insecurity than depression. Thus, understanding more psychological aspects of food insecurity and the directionality of these associations will inform the development of public and private programs designed to reduce food insecurity.

In addition to understanding the associations between food insecurity and physical and mental health outcomes, it is also important to assess the effectiveness of public programs designed to ameliorate food insecurity. Bovell et al. focused on receipt of SNAP during and after economic recession (2007-2013). Findings indicated that SNAP benefits significantly decreased the prevalence of household and child food insecurity during this period. Further, Collway et al., in a cross-sectional study, found that the more weeks each month participants reported their SNAP benefits lasting, the lower their odds of experiencing low or very low food security, thus highlighting the need for policies to better tailor SNAP benefit allotments to the needs of disadvantaged families. Wilkerson & Krey, in their assessment of access to federal summer meal programs, revealed that urban areas compared to suburban and rural areas have greatest access to USDA's Summer Meals Program. The availability of transportation was also closely tied to access. Just as food insecurity is influenced by accessibility and availability of food, so is the effectiveness of public food assistance programs. While it is important to understand the status of food insecurity in the U.S., it is also critical to assess global trends of this persistent public health problem. Similar trends are now observed globally in developing nations including India where food insecurity is pervasive, and the prevalence of obesity continues to rise due to shifts in the nutritional environment primarily towards increased availability and consumption of unhealthy foods. Harrell et al., across two studies, present a qualitative analysis documenting barriers to engaging in healthy eating among Indian adolescents with flavor preferences

reportedly hampering intake of fruits and vegetables, and how the cultural factors related to food in India are shifting with dietary intake of Indian adolescents influenced by both western and traditional cultures.

Although research has made great strides in better understanding the determinants and consequences of food insecurity, more research is warranted to advance the field and draw a continued evidence-base for the need for nutrition assistance programs, since food insecurity, poverty, and nutrition have complex associations and potential mediators have yet to be elucidated. Recent shifts in food insecurity screening and monitoring are promising first steps. For example, the American Academy of Pediatrics policy statement<sup>19</sup> released in 2015 recommends screening for food insecurity among their families as part of standard of care in the healthcare system. This is the first step towards identifying food insecurity among families, especially those with children, and linking them with resources, such as nutrition assistance programs, including WIC and SNAP, as well as local food banks and food pantries. Monitoring food insecurity on an ongoing basis within an electronic record system can also allow for healthcare systems to recognize the burden of the problem in the community and how it links to other health outcomes. Several other initiatives to address food insecurity at the community and systems level are underway with various models being implemented and assessed around the U.S. to boost production, distribution and consumption of more healthful foods. These include healthy corner store initiatives,<sup>20,21</sup> Fruits and Vegetable Prescription programs<sup>22</sup>, community supported agriculture<sup>23</sup> and school-gardens<sup>24</sup>, healthy food financing<sup>25</sup>, and programs through the local food banks channeling donated produce into the communities<sup>26</sup>. However, the costs associated with these programs, their economic, social and health benefits and sustainability remains to be seen. Finally, advocacy at community, state, and national level to improve funding for and expansion of programs such as WIC or SNAP is needed.

This special issue presents findings both across the U.S. and abroad on food insecurity, nutrition, potential impacts on children and families. It offers a multidisciplinary approach in order to frame these issues and ultimately contribute to efforts to promote health and well-being among children and their families.

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