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Innovative Nutrition Policies and Programs to Reduce Low-Income Children's Sodium Intake in the United States: Implication for Social Work

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ABSTRACT

Globally, high sodium intake is the leading dietary risk factor of mortality. Most Americans, including children, consume too much sodium compared with the federal guidelines. Socioeconomic and racial disparities place children, many of color, from low-income households and neighborhoods, at higher risk of consuming foods high in sodium. Preferences in sodium levels are determined during childhood and can be challenging to modify in adulthood. Thus, early intervention and health promotion in children's sodium intake is crucial to reducing health consequences and extending the overall life expectancy of Americans. This article highlights innovative health policies and programs that aim to reduce sodium levels in food that American children consume. Additionally, the implications of federal food assistance programs are discussed. Furthermore, the role of social workers is noted regarding providing education and guidance around food selection and eating practices to support the health of American children and families.



KEYWORDS

Nutrition policies and programs; sodium reduction; low-income; health equity

Introduction

Globally, high sodium intake is the leading dietary risk factor for mortality. It was estimated that more than half of diet-related deaths were attributable to risk factors, including a high intake of sodium (3 million deaths) (Afshin et al., 2019). High sodium levels directly impact one's risk for heart disease and other health complications, including high blood pressure, strokes, and diabetes (Murphy et al., 2021). In the United States, the leading cause of death among adults is heart disease (Murphy et al., 2021), which is mainly attributable to high intake of sodium (Afshin et al., 2019). Sodium reduction is one of the most overlooked population interventions that could save millions of lives per year in the U.S (Kontis et al., 2019). Levels of sodium preference are determined early on during childhood. According to the family systems theory (Cox & Paley, 1997), which centers on elucidating dynamic interactions in child development, parents, other caregivers of children in the family, and their relationships play key roles in ensuring child health. As such, organizations such as the National Academy of Medicine have made recommendations to change the food environment, including choices parents and other caregivers have, early on during childhood (National Academies of Sciences, Engineering, and Medicine, 2019).

There is a need to understand which nutrition policies and programs work to reduce sodium intake, especially among the diets of children and families living in poverty or in low access food environments. This is a group at a risk of consuming high levels of sodium, in part, due to the generally higher cost of healthy foods lower in sodium levels and limited accessibility to such foods, and thus, they are likely to experience sodium-related morbidities and mortalities (Capewell & Kypridemos, 2017).

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Although prior research has examined sodium reduction policies at the state and local levels in the United States (Sloan et al., 2020), no study has covered policies and programs specific to American children, including those from low-income contexts. This conceptual paper focuses on 1) identifying global, federal, and local policies and programs aimed at reducing children's sodium intake, 2) describing and analyzing ways in which U.S. federal food assistance programs currently address sodium intake and health, 3) providing recommendations to improve existing federal food assistance programs, and 4) explaining ways social workers can support efforts to improve household and children's nutrition security through practice and policy. This paper is situated in public health and social work because it is focused on food and health disparities of low-income households with children. Recommendations are rooted in social work values of social justice, empowerment, and self-determination, and public health promotion that can improve equity.

Sodium Intake of Americans and Current Federal Guidelines

The United States is one of the top three countries with highest population sodium intake per day, along with China and Japan (Afshin et al., 2019). Currently, American adults consume, on average, 3,400 mg of sodium per day, which is nearly 50% higher than the sodium intake limit recommended by the federal guideline of 2,300 mg per day (National Academies of Sciences, Engineering, and Medicine, 2019; U.S. Department of Agriculture Food and Nutrition Service, 2020). High sodium levels have been directly linked to cardiovascular disease (CVD) (Murphy et al., 2021). In terms of Global Burden of Disease distribution, the United States is one of the top four countries with the largest CVD burden (Mensah et al., 2019). Advice from federal governmental agencies (e.g., USDA, USDHHS) per their Dietary Guidelines for Americans, to reduce salt intake to less than 2,300 mg sodium per day for adults has been provided consistently since the 1980s (USDA & USDHHS, 2020). Furthermore, the Nutrition Labeling and Education Act of 1990 specified a daily value of <2,400 mg of sodium in the nutrition label (Nutrition Labeling and Education Act, 1990). However, results from urine sodium excretion data showed an increase in sodium intake among American adults between 1988 and 2010 (Pfeiffer et al., 2014).

Similar trends have been found among American children, with the vast majority (i.e., 9 out of 10) of school-aged children consuming more sodium than recommended, on average 3,300 mg of sodium daily (Centers for Disease Control and Prevention, 2018; Cogswell et al., 2014). The recommended sodium intake level for ages 9 to 13, according to the most recent Dietary Guidelines for Americans, is 1,800 mg of sodium (U.S. Food and Drug Administration, 2021). That is, American children are consuming nearly *twice* the amount of daily sodium levels recommended. Individuals from low-income backgrounds, including children from low-income families, are at risk of consuming higher levels of sodium compared to their middle-income counterparts (de Mestral et al., 2017). For example, children from low-income contexts consume almost 25% more sodium than those who were in higher-income areas (Keita et al., 2009). These higher levels of sodium intake may increase the burden of diseases among low-income children, resulting in higher prevalence of premature deaths and chronic illnesses throughout their life span (Yoon et al., 2024).

Disparities in Sodium-Related Health Consequences and the Role of Food Insecurity

Black, Indigenous, and People of Color (BIPOC) children are at a higher risk of developing sodium-related chronic conditions (e.g., obesity, diabetes, and hypertension) (Price et al., 2013). For example, obesity rates are almost two times higher in BIPOC children (Reis et al., 2020). Additionally, hypertension is more prevalent in Black children compared to White children (Chen et al., 2015).

Nutrition plays a crucial role in children's health. However, adults are often the ones making decisions about what types of food (and by extension the types of nutrients contained in such foods) their children consume. That is, adults are the ones conducting the food shopping, as well as preparation, which limits the autonomy of children in making food-related decisions (Kaiser et al.,

2015). For low-income families, financial limitations, competing household, caregiving, and work-related demands on time that put pressure on parents' food-related decision-making. As an example, the option to eat a home-cooked healthy meal that children may not consume, providing cheap, fast convenience foods that kids like and will fill them up, or going without much food and emotional connections to food (Fielding-Singh, 2023).

Furthermore, food insecurity, defined by the USDA as having inconsistent access to food due to limited resources and financial reasons, may make it challenging to obtain nutritious foods – including healthy foods low in sodium – consistently and regularly for their children (Coleman-Jensen et al., 2015; Gundersen & Ziliak, 2015; Smith et al., 2022). Research on food insecure families has predominantly focused on the adults in such families, with fewer studies including children's nutritional outcomes (Dave & Cullen, 2012; Eicher-Miller & Zhao, 2018; Hanson & Connor, 2014; Thomas et al., 2019). As such, we have less knowledge of how children from such households fare with regard to their food insecurity levels and its effects (i.e., types of food they consume and their nutritional values, especially sodium levels). That said, there is a small evidence base examining the associations between food insecurity and sodium intake in low-income children, and the results seem generally mixed (Hutchinson & Tarasuk, 2022; Price et al., 2013). Specifically, some studies have shown that low-income families with children facing food insecurity are more likely to consume more food from fast-food restaurants, which are often limited in their nutritional values and contain higher than recommended levels of sodium (Dave & Cullen, 2012; Keita et al., 2009; Widome et al., 2009). Others have found that while sodium intakes did differ among young children in severely food insecure families, when adjusted for household sociodemographic factors, there were no significant differences by families' food security status (Hanson & Connor, 2014; Hutchinson & Tarasuk, 2022).

Shaping Sodium Intake Preferences Early On

In addressing sodium levels, it is important to address the early years to prevent these health concerns prior to adulthood (Bobowski, 2015). According to the American Academy of Pediatrics (2021), children as young as 4 months may begin to consume baby food (e.g., purees) as their first solid food. Once they are able to sit up and bring their hands to their mouths, children may consume finger foods (e.g., wafer-type cookies, crackers, finely chopped chicken, scrambled eggs). Importantly, recommendations are in place so that sodium intake levels are relatively low in these finger and infant foods – including foods that families with low-income can obtain through Women, Infants, and Children (WIC) and the Supplemental Nutrition Assistance Program (SNAP) – with suggested levels of sodium for infants under six months being 110 mg (National Academies of Sciences, Engineering, and Medicine, 2019). These sodium-related recommendations for baby foods potentially allow for shaping Americans' healthy sodium intake preferences as early as infancy.

However, beyond infancy, sodium levels in foods toddlers, young children, and school-age children consume are not well regulated outside of the National School Breakfast and Lunch Programs (NSBLP). Further, there is a lack of recommendations for these three groups of children, leading them to potentially consume higher levels – almost identical to what adults consume – of sodium than needed (MacLeod & Cairns, 2015). Children are eligible for the NSBLP through a variety of ways. This includes children who live in households receiving SNAP benefits, in households with have incomes at or below 130% of the Federal poverty level, or in school districts in high poverty communities that are part of the Community Eligibility Provision that provides free breakfast and lunch to all students enrolled there (USDA FNS, 2017a, 2024). The breakfast food served in these programs must meet FDA guidelines to receive federal funding, which indicates sodium levels need to target under 540 mg for children aged kindergarten to fifth grade, under 600 mg for grades six to eight, and under 640 mg for grades nine to 12 (United States Department of Agriculture Food and Nutrition Service, 2022a). Lunch food has a separate set of sodium levels, with the target amounts by school year 2023 to be under 1,110 mg for children in kindergarten to fifth grade, under 1,225 mg for children in sixth to eighth grade, and under 1,280 mg for children aged ninth to 12th grade (United States Department of Agriculture National Institute of Food and Agriculture, 2022).

Even though the reduction in sodium is beneficial for children eating at school, there are still meals outside of school, such as dinner, snacks, and weekend eating habits that may impact sodium intake. However, for children aged kindergarten to fifth grade, between breakfast and lunch they will have eaten 1,650 mg of sodium, which is already higher, without including dinner or snacks, than the recommendation per the Dietary Guidelines for Americans, indicating children aged five to eight should have a daily sodium intake of 1,500 mg and children aged nine to 13 should have an intake of 1,800 mg of sodium (USDA, 2021). Studies show that on average, toddlers aged 1 to 3 consume 2,000 milligrams of sodium daily (John et al., 2016). Again, this not only shapes sodium preferences for developing children but also can have negative consequences for their health as adults (Bobowski, 2015; Murphy et al., 2021).

Policies and Programs to Reduce Children’s Sodium Intake: Federal Efforts

Currently, within the United States, there are various policies that are attempting to address these sodium levels across multiple food groups. As noted before, the FDA provides guidelines for nutrition levels through its 2020–2025 Dietary Guidelines for Americans (United States Food and Drug Administration, 2021). However, these guidelines are limited to children ages two and above, with no sodium intake recommendations for those under two (USDA, 2021). Since infants can start consuming solids as early as four months (American Academy of Pediatrics, 2021), this means that the Dietary Guidelines for Americans do not apply to children ages 4 to 23 months old, leaving out some 10 million children each year from being beneficiaries of national guidance on sodium intake levels (U.S. Census Bureau, 2021). Additionally, the Center for Disease Control and Prevention (CDC) and its Division of Nutrition, Physical Activity, and Obesity are tasked with reducing sodium in foods. Citing the Dietary Guidelines for Americans, CDC recommends that those ages six to 18 consume less than 2,300 mg. However, their practical implications for doing so only emphasize personal responsibility, such as reading nutrition labels or asking for low sodium options when eating at a restaurant, with no mention of macro-level approaches, such as policies in place to assist with lowering sodium intake (Centers for Disease Control and Prevention, 2018). For school-aged children and younger youth, taking such personal responsibility for the food they consume seems as though a developmentally inappropriate expectation. Furthermore, for parents and caregivers, particularly those with limited socioeconomic resources, a focus on personal responsibility can easily lead to blaming them for their poor choices. Policies and structures are inadequately put in place to provide support and education related to selecting low sodium foods on behalf of their children, if those options are available or within limited food budgets.

The Dietary Guidelines for Americans breaks up the age groups more than the CDC does, which can be confusing when determining the appropriate sodium recommendation, as ages five to eight are recommended to consume less than 1,500 mg per day. However, the CDC groups them with ages up to 18 (USDA, 2021). That is, the USDA and CDC seem to have disparate practices related to making recommendations for sodium intake. Furthermore, according to the CDC, their focus is on nutrition in schools, aiming to reduce sodium levels in the foods primarily distributed within school contexts (CDC, 2018), whereas the focus of the USDA seems broader. For example, in addition to releasing the Dietary Guidelines for Americans, the USDA is actively working with companies to manufacture processed foods with lower sodium, and monitoring their progress, as lowering the sodium levels within these food items is a preventative step to start children on a lower sodium intake level (United States Food and Drug Administration, 2021).

However, many of these guidelines and recommendations are not binding. Outside of the regulations set for the NSBLP, there has been a lack of legislative action to make them into law that food companies are mandated to abide by. It begs the question of whether such guidelines and recommendations are progressive in their focus, goals, and implementation. For example, most recommendations to food companies and corporations in product reformulation are framed as voluntary measures, rather than objectives that must be met, with no repercussions

for failing to meet these measures. Although food regulations for schools that utilize federal food programs are a solid first step, sodium levels in food sold and served outside of schools do not have current widespread regulations that must be followed.

Specific to children's health, national initiatives can also take the form of health campaigns. For example, former first lady, Michelle Obama, started a federal initiative called, *Let's Move*, which primarily focused on children's health through healthy foods being available within schools, physical exercise, access to foods, and parental guidance (Barnes, 2010). Within this initiative, while there was a focus on early childhood to prevent obesity, there was no mention of sodium or the importance of maintaining low sodium consumption during early childhood (Barnes, 2010). The *Let's Move* campaign included recommendations that chain restaurants display the sodium content of their food, as research has shown that when individuals are provided information regarding the nutritional value of their food choices, often the healthier option is chosen (Barnes, 2010). The outcomes of these recommendations remain nuanced, as childhood obesity for children aged 2 to 5 decreased, whereas childhood obesity rates in general remain unchanged (Ogden et al., 2014; Skinner et al., 2016).

Within the context of early childhood care and education, there have been related efforts to reduce sodium levels of food provided to children in daycares. For instance, daycares that participate in the Child and Adult Care Food Program (CACFP), a federal program, must meet nutritional standards that follow the Dietary Guidelines for Americans sodium recommendations (i.e., 1,200 mg per day for ages one to three; 1,500 mg per day for ages three to five; 2,300 mg per day for ages above 13 (USDA & USDHHS, 2020). Although an important federal program, evaluation efforts and subsequent evidence showing the program effectiveness of CACFP in reducing sodium levels in foods distributed to children in daycare and the implications of reduced sodium levels are currently unknown, limiting the potential impact of this program.

Policies and Programs to Reduce Children's Sodium Intake: Local Efforts

Other innovative programs have been developed across the country to address the high sodium levels in food that is often served to children. For example, in San Francisco, their Health Food Incentive Ordinance only allows incentives (such as children's toys in McDonald's Happy Meals) to be given with the meal, only if it meets specific nutritional criteria including sodium levels lower than 640 mg (Otten et al., 2014). While restaurants initially did not implement meals that met the nutritional standards, they have gradually begun changing their practices so that their side dishes and beverages meet requirements. The changes to these side dishes resulted in a significant decrease in total sodium (Otten et al., 2014). Additionally, the changes that McDonald's adopted for side options within San Francisco were then applied to all its franchise locations within the following two years across the United States (Otten et al., 2014). Implementing these changes at national fast-food restaurants is crucial. Low food access environments (formerly referred to as food deserts) are generally low-income areas with poor transportation and limited access to healthy, fresh, food (Rhone, 2021). These areas have over two times the number of fast-food restaurants when compared to other food environments; an intervention that is designed for these restaurants is important for children who are living in these communities (Yeh & Katz, 2006).

In summary, there are innovative federal and local efforts taking place to reduce sodium levels in foods children consume. Currently, there is no agreement or unified approaches to prioritizing children's sodium intake across and among federal agencies responsible for food and health (e.g., USDA, CDC, and FDA). Food and agriculture accounted for \$1.5 trillion of the Gross Domestic Product in the U.S. (USDA ERS, 2023). Along with bipartisan politics related to food, agriculture, health, and food assistance programs for low-income families, there are competing interests and complexities related to food production, distribution, marketing, and pricing at global, federal, state, and local levels that could impact consumption of foods and sodium intake for households with children. These challenges make consistency, implementation, and monitoring of current and proposed policies and programs difficult. Even less is known about their effectiveness in decreasing sodium intake, changing sodium level preferences, and promoting short- and long-term health outcomes for some of the most marginalized children in the U.S.

Lessons Learned from International Efforts to Reduce Children's Sodium Levels

Globally, countries have implemented a variety of techniques that could inform related U.S. policies and programs going forward. For example, in 2011, Hungary implemented a Public Health Product Tax (PHPT) on packaged foods and beverages that contain high levels of sugar and salt, such as soft drinks, confectionary, salty snacks, condiments, and fruit jams as a means of deterring individuals from purchasing these products (Zámbó et al., 2020). Although the follow-up of this public tax does not show a decrease in individuals' consumption of unhealthy food, but rather an increase in overall purchases, leading to a source of revenue for their Health Insurance Fund, if a similar tax was developed in the United States, it may yield other results (Csákvári et al., 2018).

Furthermore, the United Kingdom implemented a successful voluntary salt reduction initiative, which included steps such as setting sodium reduction targets within the food industry and timelines for these reductions to occur, as well as action by the Department of Health in a political arena of enforcing these changes within the food industry (He et al., 2014). Additionally, the government is legislating to restrict the promotion of products deemed high in fat, sugar, and/or sodium (He et al., 2014). This includes restrictions on “buy one get one free” promotions involving foods high in sodium, both online and in-stores (He et al., 2014). As a result, sodium levels in many target foods have been reduced significantly, some by 40 to 50% or more, with daily sodium consumption dropping by almost 15% (Center for Science in the Public Interest, 2016).

Some countries have effectively used labeling and warning signs to inform consumers, including parents and families. In Finland, warning labels are required if a specific product contains sugar or salt above a defined threshold (Center for Science in the Public Interest, 2016). For example, if the salt content is more than 1.3% in bread, 1.8% in sausages, 1.4% in cheese, 2.0% in butter, and 1.7% in breakfast cereals or crisp bread, then these foods are required to carry a “high salt content” warning that are visible to the consumer (Center for Science in the Public Interest, 2016; Queen Mary University of London, n.d.). Since this introduction, the average sodium content in food products in Finland has decreased by 20–25% (Center for Science in the Public Interest, 2016).

Relatedly, countries in Latin America have created black warning labels on the front of products if they contain high levels of sodium (Dorlach, 2020). The use of black warning labels in Chile decreased sodium intake per day by an average of 27 mg (Taillie et al., 2021). In addressing the high levels of sodium in the United States, it is evident that various other countries have taken effective measures which should be adapted for lowering sodium in the United States. Including warning labels on high sodium foods that are easily identifiable is a first step that should be adopted. Additional tax on foods that are high in sodium could be beneficial, however low sodium foods would need to be readily accessible and available, especially for those utilizing government assistance before a tax is implemented. Food that is lower in cost often ends up being higher in sodium, which would end up disproportionately impacting those with low incomes. Overall, these countries have innovative ideas that have shown to be effective in reducing sodium intake and the United States has much to learn and model from.

Food Assistance Programs for Low-Income Children and Sodium Requirements

The United States' government has provided some type of federal food assistance since 1939, during a time of widespread unemployment. Since 1964, the United States has provided food assistance programs like Food Stamps (now SNAP or the Supplemental Nutrition Assistance Program) through legislation (USDA Food and Nutrition Service [FNS], 2018). This section will describe the most common food assistance programs serving children in low-income households and communities and their participation rates over time. We then identify aspects of the program related to dietary and nutritional quality, with an emphasis on any program requirements related to sodium intake for children and policy initiatives addressed at improving affordable healthy food access for low-income households.

SNAP and SNAP-Related Programs

The Food Stamp Program (FSP)/SNAP has grown from serving around 2.878 million income-eligible people with an average monthly payment of \$6.63/person in 1969 (FNS, 2018) to 41 million income-eligible people with an average of \$233.32 per month in 2022 (USDA FNS, 2022b). SNAP serves individuals and households that have a gross monthly income at or below 130% of the federal poverty level (CBPP, 2022). In 2019, 43% of SNAP participants were children (United States Department of Agriculture Food and Nutrition Service, 2021a). SNAP participants can purchase any food item (e.g., fruits, vegetables, meat, poultry, fish, snack foods, beverages, dairy, breads, and cereals) in addition to seeds and plants that will produce food (USDA FNS, 2021b) at the 250,000+ authorized retailers (USDA FNS, 2021c). Since 2019, several states have been authorized by the USDA FNS to pilot online purchasing programs (USDA FNS, 2022e), which is intended to improve food access by decreasing barriers for low-income households (e.g., limited transportation, mobility challenges, and low food access communities with few food options) (USDA FNS, 2019a).

One of the strengths of SNAP is its alignment with empowerment, self-determination, and human dignity because participants can make their own choices about what food to purchase (e.g., foods for health conditions or foods reflective of different cultures), and, in many cases, which SNAP-authorized retailers they choose to utilize their Electronic Benefit Transfer (EBT) cards (FRAC, 2024). The Food Research and Action Center [FRAC], (2024) rejects efforts to “restrict which foods and beverages SNAP participants can purchase” (p.1), citing the bipartisan and unsubstantiated claims that restricting foods SNAP users purchase will improve health outcomes. FRAC (2024) provides evidence that adult SNAP users currently have lower healthcare costs than low-income adults not participating in SNAP and children benefitting from SNAP are healthier than low-income children not participating; thus, there is no need to add a layer to the policy-driven program. In addition, FRAC (2024) notes the burden to “understaffed” state agencies “with approximately 561,000 vacancies,” downstream “burdens” on “cashiers policing purchases,” and the unwieldy process of “updating thousands of food and beverage items in stores” (p. 1).

SNAP does offer a few specialized programs that provide opportunities to address sodium intake in households with children, without the need to update the signature program.

SNAP-Ed programs utilize evidence-based interventions to assist SNAP participants with maximizing food budgets, provide health-promoting education related to food consumption, support community gardens, and educate children and adults about nutrition and cooking (USDA SNAP-Ed Connection, n. d.-c). SNAP-Ed programs are relevant programs that can adopt some of the local and federal efforts. For example, educators can provide families with the U.S. Dietary Guidelines related to sodium intake, highlighting the levels used in the NSBLP and the CAFCP and, if applicable, sharing information about sodium at any fast food restaurants that are frequented. In addition, guidance in reading food labels may be helpful, considering how much emphasis has been on food warning labels across the world.

Two USDA National Institute for Food and Agriculture (NIFA) programs also complement the USDA FNS SNAP and SNAP-Ed programs and may serve as programs in which children’s sodium intake could be addressed more directly. The Gus Schumacher Nutrition Incentive Program (GusNIP-NI) provides nearly \$39 million in funding for nutrition incentive programs and produce prescription programs. Nutrition Incentive Programs are intended to increase fruit and vegetable purchases for SNAP recipients at the point-of-sale (i.e., grocery store and farmers market); for example, programs like Double Up Food Bucks provide a dollar-for-dollar match so that \$10 of SNAP allows the purchase of \$20 of fresh produce (Fair Food Network, 2021). Produce Prescription Programs (GusNIP-PPR) are intended to reduce food insecurity, reduce healthcare use and costs, and increase the consumption of fruits and vegetables (USDA NIFA, n.d.). Dietitians and health professionals could evaluate differences in self-reported consumption and sodium intake of participants compared to before benefits were used. This is especially important to compare between canned vegetables (which often have sodium) and fresh vegetables, as well as vegetable juices and GusNIP-PPR eligible juice (without salt). This could be paired with self-reported health and health changes, or researchers could design studies that allowed for blood or urine tests for consenting participants.

In addition to GusNIP, the Expanded Food and Nutrition Education Program (EFNEP) provides nutrition education that addresses the connections among poor health and nutrition, food insecurity, low-incomes, and low amounts of physical activity (USDA NIFA, *n.d.*). EFNEP is delivered through 76 land-grant institutions and their extension programs to “200,000 low-income adults and 450,000 low-income youth” each year (USDA NIFA, *n.d.*) Evaluations of EFNEP show changes in adults and youth related to increased knowledge of healthy foods, improved dietary intake, and increased knowledge and ability to prepare foods at a low cost (USDA NIFA, 2022). EFNEP, like SNAP-Ed, utilizes nutrition education. Emphasizing evidence related to sodium intake for children, sharing resources about food preparation methods to reduce sodium intake (if needed), and supporting families’ confidence in making food choices and reading food labels to optimize health through EFNEP is feasible.

WIC and WIC-Related Programs

In addition to the FSP/SNAP, the 1969 White House Conference on Food, Nutrition, and Health resulted in the Commodity Supplemental Food Program in 1969 to address nutrition needs of low-income mothers and their children (up to age five) who are at or below 185% of the U.S. poverty level (Kennedy & Dwyer, 2020). Later, as a result of the Child Nutrition Act of 1966, the WIC program was made permanent, growing from 88,000 participants/month in 1974 to 6.244 million participants/month in 2021, including 43% of infants in the United States (Child Nutrition Act, 1996; United States Department of Agriculture Economic Research Service, 2022; USDA FNS, 2022c). Similar to SNAP, WIC participants utilize an Electronic Benefit Transfer (EBT) card at WIC-authorized stores, but unlike SNAP, there are WIC-approved food items in specific quantities (e.g., two pounds of whole wheat bread, 18 ounces of peanut butter, and 36 ounces of breakfast cereal) (USDA FNS, 2022d). Participants receive a cash value benefit (e.g., \$11 for women) for fruits and vegetables (fresh, canned, frozen) (McLaughlin & Martinez, 2021; USDA FNS, 2016). States make determinations about additional rules, such as requiring participants to buy a store brand or least expensive brand of food items when they shop (McLaughlin & Martinez, 2021).

Monthly food packages differ based on age; for women and infants, there are also different food packages based on breastfeeding practices (USDA FNS, 2022e). WIC-approved foods meet FDA standards; this includes products that cannot contain added sodium or salt (e.g., tofu, canned fruits, frozen fruits, dried fruits, and infant food) and the inclusion of products that are light or low in sodium or salt (e.g., cheeses, juice, canned legumes, canned or frozen vegetables, canned beans, canned fish) in addition to the full-sodium and salt version of food products (USDA FNS, 2022b). Participants, then, still have options (i.e., choosing a low sodium can of beans or a regular can), though there are restrictions based on the approved items and quantities. Since 1992, the WIC Farmers Market Nutrition Program (FMNP) has provided WIC participants with vouchers to purchase fresh and locally grown produce at farmers markets and roadside stands and to increase participation and awareness of farmers’ markets (USDA FNS, 2021a). WIC also provides additional services, including nutrition education, health and social welfare screenings and referrals, breastfeeding promotion and support, and food safety education (USDA FNS, 2022c). Educational programming supporting or promoting optimal levels of sodium intake from the USDA or CDC could be very effective since WIC serves children ages five and under. Nutrition education and health screenings are part of the program. At a macro level, advocates could try and work with food manufacturers, similar to efforts by the USDA, to have more low-sodium options available to WIC-authorized retailers.

National School Breakfast and Lunch Programs

The NSBLP was created in 1946 with the intention of ensuring school-age children have access to “nutritionally balanced, low-cost, or no cost lunches” at school (USDA FNS, 2017b), growing from

7.1 million eligible children per year to 30.4 million children in 2016 (USDA FNS, 2019b). In 1975, the School Breakfast Program was made permanent, growing from 0.5 million eligible children during the pilot program in 1970 to nearly 14.6 million children in 2016 (USDA FNS, 2017a). Some schools and local educational agencies in low-income areas can now provide free lunch and breakfast to all students, per the Community Eligibility Provision (USDA, 2015). The NSBLP meals increase food security for households with children (Arteaga & Heflin, 2014; Bartfeld & Ahn, 2011; Gundersen et al., 2012) reduce the risk of food insufficiency (Huang & Barnidge, 2016), provide more nutrients when compared to other lunches and breakfasts from home or other sources (Clark & Fox, 2009), improve physical and mental health outcomes (Gundersen et al., 2012), and improve school attendance and academic performance (Bartfeld et al., 2019; Hartline-Grafton, 2016; Kleinman et al., 2002).

The NSBLP meals are required to meet federal standards, though menus and meal preparation are determined at the local level; a USDA FNS (2012) memo regarding nutritional standards mandates schools “reduce the levels of sodium” in meals over a 10-year period (p. 4088). As part of the Biden Administration’s Building Back Better with Schools Meals, the USDA FNS (2022d) acknowledged improvements schools made, noting that from school years 2009–2010 and 2014–2015, Kids’ Healthy Eating Index scores related to sodium improved from 10% to 27% for lunches and from 72% to 93% for breakfasts but indicate a great need for growth to achieve a maximum score of 100% for lunches that aligns with Dietary Guidelines for sodium intake (USDA FNS, 2019a). Furthermore, “legislative and administrative actions delayed full implementation of the requirements for milk, whole grains, and sodium” (USDA, 2022a) and were further impacted by the COVID-19 pandemic. The new rule states that sodium levels will not change for 2022–2023 and will “decrease marginally (10%) in 2023–2024 to put schools on an achievable path toward long-term sodium reduction” (USDA FNS, p. 2). The USDA FNS (2019b) reports, however, that “despite significantly lower sodium intakes among NSLP at lunch,” over “81% of NSLP participants and matched nonparticipants had excessive” sodium intakes, and “there was no significant difference” between them (p. 28).

The Emergency Food Assistance Program

The Emergency Food Assistance Program (TEFAP) is a federal program that provides funding to the U.S. Department of Agriculture to buy nutritious USDA foods from a current list of 120 products, which are then distributed to states (USDA FNS, 2020). States provide most of that food to specific local agencies (e.g., foodbanks), which then distribute locally to community agencies and organizations that have direct contact with their community members, clients, and/or participants for household use, while some may go directly to prepared meal programs for low-income households (USDA FNS, 2020). This program has existed since 1981 and has been funded through the Farm Bill. The FY2023 list provides the availability of USDA foods by category (fruits, vegetables, legumes, proteins, dairy, grains, oils, and other) and indicates that, for canned foods, only low-sodium canned vegetables and legumes, reduced sodium soups, and unsalted peanuts are available (USDA Foods, 2022). Feeding America is the largest food distribution program in the United States that includes 200 food banks and 60,000 food pantries and meal programs; in 2020, over one-third of their food for 2.4 billion meals came from TEFAP (Feeding America, n.d.). Food pantries often provide clients the opportunity to choose from different items available, by incorporating the low or reduced sodium foods into their offerings, food pantry clients are able to access and consume healthier options and increase food security (Cabali et al., 2013) with TEFAP Healthy Eating Index scores around 83–89 out of 100, as compared to SNAP scores of 58 out of 100 (Zimmerman et al., 2012).

Implications for Social Work Practice and Policy

Social workers play important roles in supporting and promoting the health of children and families, especially those that have been historically marginalized and underserved. This often includes those who are recipients of WIC, SNAP, and other government programs we noted above. Social workers

can provide awareness, education, and guidance around food selection and eating practices within the context of parenting. From a family systems perspective (Cox & Paley, 1997), which focuses on the role parents have in shaping healthy child outcomes, awareness is the first step in changing a parent's attitude and understanding of sodium. Social workers themselves must be aware of food policies and programs that are available on a local, state, federal, and even international level, as well as the food assistance that is available in order to be of help to the parents that they are working with. Parents may be less likely to be aware of the relationship between sodium and health and more likely to report difficulty in interpreting sodium information displayed on food labels (Khokhar et al., 2019). Another aspect informed by a family systems perspective involves supporting multiple caregivers in the same household or food environment to work as a joint caregiving team and thus reflect concordance in choosing healthy food options on behalf of their children.

Beyond awareness, resources that make eating lower sodium accessible are crucial. Working with clients, especially those with children or who are pregnant, allows for social workers to encourage lower sodium intake for the client and their families and assist with participation in programs such as WIC. Locating and encouraging use of food pantries where TEFAP is offered as well is beneficial. However, practical implementation is necessary to simplify the process of engaging in lower sodium foods and decrease feelings of being overwhelmed. It is also important to note the role that social workers play in self-determination of the client and respecting client choices while making sure they are aware of low sodium options and feel knowledgeable on the resources available.

Social workers can also advocate for relevant health policies and programs that help reduce sodium levels in the foods that children and their families consume. A crucial component of social work and a core value is advocacy. The National Association of Social Workers (NASW) Ethical Principles include service and social justice, which focuses on advocating for clients as well as advocating to change or dismantle the systems that oppress or discriminate against clients (NASW, 2021). Advocating to reduce sodium in children's food directly follows NASW values, as this includes access to information to assist clients in making nutritional decisions, as well as resources available to help with accessing healthy food. Although awareness and warnings are beneficial first steps in addressing sodium levels, long-term change in policies is crucial for systemic impact. Low-sodium foods must be affordable and accessible in location and environment for individuals to benefit. Specifically, for individuals who are lower-income and utilize WIC or SNAP, providing low sodium food options to be purchased as well as incentivizing individuals to purchase them is necessary for implementation of a successful sodium reduction policy.

Campaigns focused on familiarizing parents with what foods are presented in low sodium options as well are beneficial when parents are shopping in the store for options. Additionally, social workers can lobby for legislation that provides "caps" on sodium levels in food for children. Overall, these efforts could improve the health of American children and families but also help reduce the financial burden related to health-care costs. For example, by one estimate, reducing the average daily American sodium consumption by about one-third could reduce the blood pressure and decrease the number of new and recurrent cases of heart attack and stroke, annually averting up to 81,000 deaths and saving \$20 billion in yearly health-care costs (National Conference of State Legislatures, n.d.). Ultimately, social workers can encourage and educate individuals to make healthy choices for their children regarding their sodium intake, as well as advocating for relevant health policy and programmatic change.

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