

Wellness policy and the inappropriate use of food rewards within youth settings

by

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Abstract

There is evidence showing that the use of food rewards can contribute to chronic emotional overeating, increased calorie intake, weight gain, poor self-regulation of food intake, disordered eating, changes in reward circuitry within the brain, and increased preference for high- fat, high- sugar foods. The bidirectional nature, or the extent to which these associated negative outcomes are a consequence of, or were present before, the use of food rewards is undetermined. Most research studies on this topic are observational in nature, with some conflicting results.

Under the Healthy Hunger-Free Kids Act of 2010 (HHFKA), schools participating in the National School Lunch Program are required to have wellness policies that meet minimum standards for proper nutrition. Under this act, all school meals and snacks provided to students need to adhere to the United States Department of Agriculture (USDA) nutrition guidelines; this includes all foods made available to students during the school day such as classroom snacks brought by parents, food for classroom parties and events, or other foods given as incentives for good behavior or success. Research indicates that schools with active wellness teams that include a variety of members who are actively engaged in wellness policy implementation are more likely to have strongly written policies with better implementation compared to schools with fewer wellness team members and activity within schools. It is imperative that parents, adult caregivers, and educators understand the negative consequences associated with using food rewards, and are knowledgeable about and use alternative non-food-based strategies to encourage and reward children.

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Chapter 1 - The Negative Effects of Using Food as a Reward

It is common for adults to use food rewards, food bribes, or coercion in order to control children's' behaviors or in an attempt to motivate or incentivize them to achieve success outcomes. Rewards are typically preplanned and used to motivate children to do something in the future i.e., promising ice cream if they get good grades; giving them food to reward good behavior, i.e., incentivizing with candy for potty training; using food to reward them for eating healthful food, i.e., giving dessert if they finish their vegetables. Bribery is typically done in a spur-of-a-crisis moment to get children to comply; (i.e., giving chips to stop a tantrum in public). Coercive feeding tactics refer to trying to persuade children to do something by using force or threats. Food, especially high-fat and/or sugary foods are used because the brain is biologically wired to seek out these types of foods for physiologic and sensory pleasure (Roberts et al., 2018). There is a long list of health organizations such as the Mayo Clinic, World Health Organization, and American Academy of Pediatrics that explicitly state that food should not be used to reward, motivate, or entertain children, yet this practice is widespread in homes and in classrooms throughout the United States and across the world (Fedewa & Davis, 2015).

Research has shown that the use of food as a reward is inappropriate and is associated with changes in reward circuitry within the brain, chronic emotional overeating, poor self-regulation of food intake, and increased preference for high-fat, high-sugar foods. These physiologic and behavioral changes can contribute to overweight, obesity and using food as a sole coping mechanism, binge eating or other disordered eating (Braden et al., 2014; Eichler et al., 2019; Fedewa & Davis, 2015; Fisher & Birch, 2002; Larsen et al. 2015; K. Loth et al., 2016; Mason, 2015; Roberts et al., 2018; Remy et al., 2015). Presenting food as a reward has been shown to increase its inherent value and make it more desirable to a child (Fedewa & Davis,

2015). Also, parents who use coercion, food rewards, and arguing at family meals report that their children have food neophobia and that they are picky eaters (Russell et al., 2015).

Mechanisms of Action

Feeding Distortion

Ellyn Satter is a renowned feeding specialist, whose concept of a “division of responsibility in feeding” states that the role of the parents is to determine the what, where, and when of feeding and children’s responsibility is to determine what and how much (if anything) to eat from what is being served (Satter, 2011). Babies are born with the ability to self-regulate their intake, with hunger and satiety cues based on internal regulators, rather than external cues. Satter argues that these hunger and satiety cues can remain intact if the division of responsibility in feeding is practiced. Children’s mealtime habits are erratic, at individual meals food intake is highly unpredictable which may cause adults to pressure children to eat more or less. Babies and young children respond to the energy density of foods and will compensate by eating more or less during subsequent meals depending on their needs (Powell et al., 2017). Poor feeding practices includes restrained feeding, as well as, using food to reward, soothe or entertain, pressure to eat including praise, allowing children to dictate what is being served, and not providing regular meals and snacks. Poor feeding practices create stress and distort feeding dynamics which undermines children’s natural ability to self-regulate their intake.

Offering dessert contingent upon children eating a vegetable reinforces the idea that dessert is something to be “earned” and is otherwise unattainable. Children may then feel the need to eat as much dessert as they can when they do get it because they are not sure when the next time they can “earn” it will be. Additionally, such practices send the message that vegetables and other healthy food is not exciting or desirable because they are barriers to getting

a desired food. Past experimental studies have suggested that offering food as a reward for completing nonfood tasks (homework, chores, being “good”) may increase the children’s preference for the reward food (Lu et al., 2015). Behavior that is rewarded with food is also praised by the adult, leading to children having positive adult attention and a sense of achievement. This reinforcement learning process leads children to associate highly rewarding food with the social pleasure resulting from being successful or performing a desired behavior (Lu et al., 2015).

According to Jean Piaget’s Theory of Cognitive Development, up until about age seven, children are in a pre-operational stage of development, where children think in black and white absolutes (Contento, 1981). Offering food rewards for good behavior or success may lead to children thinking only well behaved or “good” children deserve treats, which in turn could lead to feelings of guilt while eating these discretionary foods when they have free access to these types of foods. In contrast, bribing children with food in order to calm them teaches children that acting out will lead to them getting a preferred food (Larsen et al. 2015). For children, rewarding with food and praise may lead to seeking discretionary foods for emotional validation and chronic emotional overeating.

Reward Sensitivity

There are many causes of overeating, and one contributor could be how the brain responds to rewards. Alterations in reward circuitry and inhibitory control and general reward processing could play a role in overeating and the development of obesity (Adise et al., 2019). Children with greater neurobehavioral reward sensitivity, meaning they respond more to rewards, find high- fat and high-sugar foods strongly reinforcing, respond more to food incentives, and are more likely to adhere to control rules (follow through with a behavior in order

to receive a food reward) compared to children with less neurobehavioral reward sensitivity. Neurobehavioral reward sensitivity is measured through the Behavioral Activation System (BAS) scale for young children, which was developed to determine what motivates human behavior at young ages and to assess how likely children are to carry out certain behaviors in order to reach a goal or earn a reward (Lu et al., 2015). Research also indicates that there is a positive correlation between children who have a high sensitivity to food rewards and the occurrence of emotional overeating (Roberts et al., 2018).

Lu et al. (2015) looked to examine the effects of food rewards on those with high neurobehavioral sensitivity to reward, and the different outcomes between sexes. The results of this cross-sectional study showed that in general, children, especially boys who had high BAS scores and lived in households that used frequent food rewards, consumed more calories, total fat, and carbohydrate compared to those living in households that did not use food rewards. Interestingly though, body mass index (BMI) percentile as a covariate was found to be nonsignificant, as well as children's age and family income (Lu et al., 2015).

Using food as a reward may change the physiologic reward structure of the brain which could further reinforce the association of positive emotion with food consumption (Fedewa & Davis, 2015). Another cross-sectional study used functional magnetic resonance imaging (fMRI) to assess blood-oxygen-level-dependent (BOLD) response to winning food and money rewards in children ages 7–11 years old. Regions of the brain previously identified as areas of reward anticipation and receipt were studied as well as a whole brain scan that analyzed broader, more extensive coverage. Results showed that neural responses in the brain were different based on reward contingency (food or money). Children whose parents reported them as having more of an inclination to eat when emotional, and had higher attention to food, had decreased brain

responses to winning food rewards. Interestingly, these results were independent of child weight status. This suggests that reduced sensitivity to winning food relative to money might predict food patterns and behaviors that could be a risk factor for developing obesity (Adise et al., 2019).

Food Rewards and Health Outcomes

Longitudinal Cohort Studies

Longitudinal prospective cohort studies have looked at the impact of food rewards and obesity risk. One showed that food rewards were predictive of increased BMI one year later but only for children between the ages of 4–5y (Eichler et al., 2019). Another study concluded that restrictive feeding, including the use of food rewards, was not a risk factor for child weight gain and obesity because restriction did not predict increased BMI z-score (Derks et al., 2017). A limitation to this study was that researchers did not assess restrictive feeding practices until children were four years old, after parents may have been using these practices for years. Restrictive feeding and using food as a reward at age two (before any weight concerns have arisen) could lead to an increased BMI z-score when the child is older. Another limitation to this study is that researchers did not differentiate results from restrictive feeding practices and the use of food rewards, which may have different effects.

Experimental Design Studies

One longitudinal, quasi-experimental by Farrow et al. (2015) looked to assess whether emotional eating could be induced in children ages 5–7 years. Results of this small-scale study showed that 5–7-year-old children whose parents reported a greater use of food as a reward, or restricted food for health reasons ate significantly more calories when exposed to an emotional stressor compared to a control group. The implications of this may be profound, as this was a controlled laboratory experiment where children only had access to snacks for four minutes.

Children face a wide array of stressful experiences throughout the day and if they are not learning alternative ways to cope with negative emotions, they may be more inclined to eat for emotional validation. However, because this was a controlled laboratory setting, the results also cannot be generalized to the real world, where children may have an entirely different response. While this was experimental in design, it does not demonstrate causality because there are many reasons why children may develop emotional eating habits outside of having received frequent food rewards (Farrow et al., 2015).

One within-subjects experimental design by Remy et al. (2015) looked at how maternal feeding practices impacted eating in the absence of hunger (prone to eating palatable foods even when not hungry) and caloric compensation (ability to compensate for calories eaten before a meal). The use of food as a reward was the only maternal feeding practice that was significantly associated with an increase in the ability to calorically compensate, so children ate a calorie dense snack then subsequently ate less calories at lunch a few minutes later compared to children who did not receive food rewards. Parent reported food rewards were also significantly associated with eating in the absence of hunger. These are conflicting results, as caloric compensation is a potential positive outcome and eating in the absence of hunger is a potential negative outcome from food rewards. (Remy et al, 2015). Eating in the absence of hunger reflects poor self-regulation of intake and responding to external factors rather than internal hunger cues. Within the food reward group, the children who ate in the absence of hunger were not necessarily the same children who had increased ability to calorically compensate, suggesting that there are other factors at play besides receiving frequent food rewards at home.

Limitations

Observational Nature of Studies

Many researchers write about the bidirectional nature of food rewards; it has been suggested that parents use food rewards for children who respond to these tactics and would not use them if food rewards were not motivating. It is difficult to ascertain whether future maladaptive eating habits are a direct consequence of having been rewarded with food or for other reasons (Eichler et al., 2019; K. Loth et al., 2016; Liszewska et al. 2018). The evidence that suggests using food as a reward is detrimental to the well-being of children comes mostly from cross-sectional studies, most of which rely on parental report/memory and cannot show causality because they cannot determine temporality for the use of food rewards as it relates to negative health outcomes. There are a few longitudinal and experimental studies that examine the effects of food rewards and demonstrate causality. While cross-sectional evidence may show a correlation between parent use of food rewards and negative outcomes such as obesity, it is possible that the relationship is bidirectional, meaning parents use food as a reward and other coercive feeding practices in response to their children's personalities (food rewards are found to be the only thing that motivates them), or to concerns about their weight or healthfulness of their dietary intake.

Design of Studies

Food parenting experiences in specific contexts can fluctuate day to day, and meal to meal, depending on several factors, such as physical location, parent or child mood, and competing priorities of work or other children. Studies that use questionnaires to assess how often a parent uses food as a reward on a scale of 1–5 may fail to consider context-specific cases where parents who normally do not use food rewards do so because of the momentary

circumstance (Loth et al., 2018). For instance, a parent may resort to food bribery if they are late for work, feeling very stressed, and their child is having a tantrum; but otherwise, they would never use this tactic. They may change tactics during a single meal for instance, starting with encouragement and later moving to bribery.

Most studies rely on parental self-report on their use of food rewards which can be biased based on their memory of how often they use these tactics and also wanting to be seen as a good parent. There are few studies that separate food reward use from other coercive feeding practices, which likely have different effects. Likewise, there are few studies that focus on the preschool population, when food preferences are being formed and adults are more likely to use food rewards. There is a great need to have more longitudinal and experimental studies on the use of food rewards to establish causality and to develop more evidence based practice on how to motivate children without the use of food.

Interventions

Public health efforts to stop the use of food rewards should focus on strategies that adults can use in place of incentivizing with food. Some children may be more negatively affected by food rewards depending on their age, sensitivity to reward, and personality traits. It is important to examine the context in which food rewards take place as well as the end goal adults are attempting to elicit (good behavior vs success vs eating healthful food). By first uncovering the end goal, strategies can be determined that focus on how to manage stressful situations with children and how to motivate children based on developmental stage. Interventions can be tailored to the individual needs of the child and adult and may include incorporating elements of the appropriate division of responsibility in feeding and alternative nonfood rewards that may be used to motivate children.

Chapter 2 - School Wellness Policy

Children spend a significant number of waking hours at school, and many are consuming at least two-thirds of their daily calories there. Schools play an important role in the prevention of childhood obesity and promotion of health and wellness, through serving nutritious meals that meet the United States Department of Agriculture (USDA) guidelines, and through providing ample opportunities for physical activity. The Healthy Hunger-Free Kids Act of 2010 (HHFKA) was a reauthorization of the Child Nutrition and Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) Reauthorization Act of 2004 that focused on ending childhood hunger, improving student health and reducing childhood obesity (*Local School Wellness Policy Implementation Under the Healthy, Hunger-Free Kids Act of 2010*, 2014). Section 204 of the HHFKA final rule required all participating schools to establish and implement school wellness policies at a local level. The use of food rewards is addressed within HHFKA wellness policy guidelines, but not prohibited as long as the food used meets USDA standards. The effectiveness of wellness policies is dependent upon the goals that are chosen and how well schools implements the strategies to achieve these goals.

School Environment

Food Rewards and Academic Achievement

External rewards can negatively impact intrinsic motivation, an internal drive to learn for the sake of learning, rather than for an outside incentive (Fedewa & Davis, 2015). When giving food as a reward, this appeals to extrinsic motivation, or the desire to complete an activity in order to receive an external benefit unrelated to the activity or outcome (Wooley et al., 2018) and students may become fixated on external rewards in order to succeed academically (Fedewa & Davis, 2015). Also, food choices that undermine childrens' health, such as high-sugar, high-

sodium “treats” typically used as food rewards, contribute to the nutritional problems that children face. It is important for educators to consider alternatives to using food as a reward. While teachers could simply choose nonfood rewards, such as stickers, temporary tattoos, or pencils — other tactics could be considered as well. Classroom management techniques that include behavior-specific praise and physical activity breaks have been shown to positively impact student health and academic achievement (Fedewa & Davis, 2015). Food may be an immediate effective reinforcer that students find very motivating, however, there are many long term negative consequences that outweigh these potential benefits.

Competitive Foods

The school nutrition environment is governed by policies at the federal, state and school district levels, and shapes the choices students make regarding their food and beverage intake, both in and out of school. Child Nutrition Programs such as the National School Lunch Program, School Breakfast Program, After School Snack Program, Summer Food Service Program, Milk Program, and the Child and Adult Care Feeding Programs are federally governed programs that regulate the food and beverages that are provided in public and non-profit schools (Schwartz et al., 2017). “Competitive foods” are “snacks and beverages sold or served outside of school meal programs as a la carte items or via vending machines, school stores, class/school events, and fundraisers” (Green et al., 2018, p. 281) and encompass the use of food as a reward in the classroom.

Previous research has shown that there is a relationship between the availability of competitive foods in schools and increased obesity rates (Green et al., 2018), however, there is some dispute over the extent to which competitive foods have contributed to obesity (Van Hook & Altman, 2012). Schwartz et al. (2017) posited that the marketing and advertising of sugar-

sweetened beverages and other competitive foods in schools contributed to the threefold increase in sugar-sweetened beverages among adolescents from the 1970s to the 1990s. Sugar-sweetened beverages are associated with excess calorie consumption and weight gain (Schwartz et al., 2017). The HHFKA restricted the sale of sugar-sweetened beverages in schools and since its implementation, consumption has been dropping about 0.18 servings per day during school hours (Micha et al. 2018). A systematic review of literature and meta-analysis examined the health outcomes resulting from HHFKA. Although fruit consumption increased, total fat, saturated fat, and sodium consumption decreased, and there were no changes in total calorie consumption nor changes in adiposity (Micha et al. 2018).

The Role of Educators

The school environment and educators' attitudes and beliefs play a significant role in helping students to develop healthy eating habits. Teachers can influence students' eating behaviors through modeling their own eating habits and beliefs, and through classroom food practices. Classroom food practices and teacher modeling can impact childrens' weight status and relationship to food. One cross-sectional study examined the effects of intensive teacher training on classroom food practices and beliefs in American Indian reservation schools (Arcan et al. 2013). American Indian children ages 2–4 years have the highest prevalence of childhood obesity in the United States, so intervention among this population is crucial (Arcan et al. 2013). Before the training, questionnaire results showed that two-thirds of the teachers did not believe that they had an influential role in the development of their school's nutrition policy, and one-third were unsure whether their school even had an existing nutrition policy. After teachers went through intensive training on healthful eating, physical activity and ideas for non-food rewards, they reported less frequent use of candy and fast food classroom rewards/incentives and less

frequent use of candy as a treat (Arcan et al. 2013). These results were based on self-report, however, and therefore may have been subject to report bias, demand characteristics, or social desirability bias.

If educators are not involved in the development of wellness policies, nor properly trained on how to implement them, even policies with well written goals will not be effective. Most of the teachers in rural areas surveyed in one cross-sectional study done by Findholt et al. (2016) agreed that a healthy school food environment is important, but fewer teachers agreed that their own behavior and the food available at school would influence students' eating behavior. In that study, a majority of teachers used candy as a reward in the classroom, and many did not model healthy eating; instead, they consumed unhealthy snacks and sugar-sweetened beverages in the classroom (Findholt et al., 2016). An overall shift in school health culture may prompt teachers to take more responsibility for their own health modeling behaviors. Involving teachers in wellness policy development may prove to be of great benefit, as people are more likely to enforce rules they have helped develop (Findholt et al., 2016). Rewarding teachers for successfully implementing nonfood based reward strategies in their classrooms, may help motivate them for continued success, adding to school health cultural change.

Healthy Hunger-Free Kids Act of 2010

After the passage of landmark legislation in 2010, school nutrition guidelines were updated for the first time in 15 years. The new meal pattern changes were implemented in 2012 and included specific calorie minimums and maximums for different age groups, increased fruit, vegetable, and wholegrain requirements, reductions in sodium, and reductions in sugar (Hager & Turner, 2016). There is emerging evidence to suggest that these new nutrition standards have contributed to a reduction in obesity prevalence and an increase in student participation in the

National School Lunch Program with no increase in plate waste. In 2018, however, an updated rule was put into effect that provides greater “flexibility” so that flavored low-fat milk can once again be served, wholegrain requirements are relaxed, and schools have more time to enforce sodium restrictions (Child Nutrition Programs, 2017). In the beginning of 2020, proposed changes have further undone school nutrition guidelines by reducing the vegetable subgroup requirements and providing opportunity to offer meat/meat alternatives and grains interchangeably with no minimum whole grain requirement (Proposed Rules: Simplifying Meal Service and Monitoring Requirements in the NSLP and SBP | USDA-FNS, n.d.)

Section 204 of the HHFKA pertains to school wellness policies and the requirement to meet basic standards. All competitive foods need to meet nutrition standards for the Smart Snacks in Schools final rule established by the USDA. The Smart Snacks in School rules state that competitive foods must be either a wholegrain rich food, a fruit, a vegetable, or a protein and adhere to calorie, fat, sodium and sugar limits. Because food rewards fall under the category of competitive foods, as long as the food rewards fit the Smart Snack guidelines, they are permitted (*Local School Wellness Policy Implementation Under the Healthy, Hunger-Free Kids Act of 2010*, 2014). However, given the current research findings and recommendations from health organizations, the use of any food to reward behavior or success should be discouraged (Braden et al., 2014; Eichler et al., 2019; Fedewa & Davis, 2015; Fisher & Birch, 2002; Larsen et al. 2015; K. Loth et al., 2016; Mason, 2015; Roberts et al., 2018; Remy et al., 2015; Russell et al., 2015). As explored in chapter one of this report, the use of food rewards is associated with eating in the absence of hunger, changes in reward circuitry within the brain, chronic emotional overeating, poor self-regulation of food intake, picky eating, and increased preference for high fat, high sugar foods. These behaviors can lead to increased weight gain, using food as a sole

coping mechanism, binge eating or other disordered eating (Braden et al., 2014; Eichler et al., 2019; Fedewa & Davis, 2015; Fisher & Birch, 2002; Larsen et al. 2015; K. Loth et al., 2016; Mason, 2015; Roberts et al., 2018; Remy et al., 2015; Russell et al., 2015).

Additionally, section 204 provides a structure for the content of local school wellness policies, but individual districts can tailor wellness policies according to their own needs. The rule also requires that each school has at least one designated school official to ensure wellness policies are being adhered to. Other members of the school and community are also encouraged to participate to create a wellness team. Designated leaders and/or wellness teams need to periodically measure compliance and create a public assessment to ensure accountability (Local School Wellness Policy Implementation Under the Healthy, Hunger-Free Kids Act of 2010, 2014). The new proposed rule of 202, however, eases requirements for periodic review to “decrease the burden associated with administrative review” (Proposed Rules: Simplifying Meal Service and Monitoring Requirements in the NSLP and SBP | USDA-FNS, n.d.). Without periodic reviews that are available to the public, accountability is threatened, and wellness policies could remain unimplemented. Having a written wellness policy is useless if there is no implementation to help change health behaviors and overall health cultures within schools.

School Wellness Policies

School Wellness policies need to meet minimum standards and follow evidence-based guidelines to establish goals (*Local School Wellness Policy Implementation Under the Healthy, Hunger-Free Kids Act of 2010*, 2014). Best practices have been developed through the CDC, Action for Healthy Kids, and the Alliance for a Healthier Generation, but research regarding their effectiveness has not fully been established. Best practices for school wellness policy include setting goals for healthy eating and physical activity. Prolifi et al. (2017) also suggest

that best practices for wellness policy teams should also include meeting at least four times during the school year. Wellness policy teams should include members from at least three of the following stakeholders: administrators, physical education teachers, cafeteria managers, or school nurses. Wellness policy teams should also include at least one parent, at least one student, and have a mechanism in place for making wellness team activities publicly available (Profili et al., 2017).

Many schools are adopting district policies that discourages or prohibit the use of food rewards in the classroom (Turner et al., 2012). One study by Turner et al. (2012) examined the association between school district policy and classroom practice to see whether food reward prohibition policies lead to fewer classroom rewards. This study found that districts that had formal written policies prohibiting food rewards also had more with compliant school practices (Turner et al., 2012). Other studies found that strong written policy did not correspond to practice (Ickovics et al., 2019; Wolfenden et al., 2017). Schools may face barriers to implementation of district policy and state laws, and more research is needed to assess these barriers to determine potential solutions.

The effectiveness of wellness policies is dependent upon the goals they choose. Objectives should be specific, measurable, achievable, relevant, and time bound (SMART) in order to come up with effective goals that lead to behavior change (Lewallen et al., 2015). Also, building a wellness team/committee that includes teachers, foodservice staff, parents, students, and administrators is associated with greater wellness policy implementation and success. One study examined the associations between school wellness policy implementation and school wellness team best practices. It was found that all best practices except parent involvement and public reporting were all independently associated with SMART goals and successful wellness

policy implementation. This is not to say that parent involvement and public reporting are not important, but rather in this one study there may not have been enough variability among schools to see an association. The greater number of best practices met, the more likely wellness policies were being implemented. Also worthy of note is that about 20% of schools with wellness teams reported that none of the policies was being fully implemented (Profili et al., 2017). This implies the need for further supports for wellness teams so that policy can be implemented, or the need for reassessment to make goals more attainable. Further research is warranted to identify the barriers that stop schools from being able to fully execute their wellness policies.

Health Outcomes

One systematic review of literature sought to evaluate the effectiveness of approaches that schools use to implement health policies (Wolfendon et al., 2017). The overall quality of evidence was deemed “very low” from the 27 trials examined. Researchers determined that all of the reviewed studies were at high risk of bias as: none of them used blinding methods; there was incomplete outcome data for a majority of studies; some did not have a published protocol paper or trial registration making reporting bias possible; and some had high risk of selection bias. Each study examined used distinct interventions, which makes comparison difficult (Wolfendon et al., 2017).

In addition to examining the effectiveness of health policy implementation strategies, Wolfendon et al. (2017) also looked at student health outcomes and weight status change. The results were mixed, with seven out of nine trials reporting no improvement to student overweight and obesity compared to control groups. Dietary intake generally showed some positive impact after intervention. While some trials reported that schools were able to implement some wellness policy strategies, it was usually not enough to impact student health, especially concerning

weight status (Wolfenden et al. 2017). It's possible that weight status and other health outcomes remained the same for the duration of the studies, and health benefits would become more apparent in the longer term. However, the need for further research into how to make meaningful policy that translates into measurable outcomes is essential. Strongly written policy using SMART objectives is the first step to implementing goals, however, if the implementation of goals do not provide beneficial health outcomes, reassessment is necessary.

Research regarding school wellness policy implementation and subsequent health outcomes is lacking, but one strong cluster-randomized trial conducted from 2016–2018, examined the effects of wellness team strategies, policy implementation, and BMI z-score change. Researchers assisted schools in implementing their district's written school wellness policies and provided workshops to administrators, teachers, and parents twice annually. School Wellness Teams were created for day-to-day wellness promotion for nutrition and physical activity. For each policy, researchers provided assistance with implementation. For instance, districts had policies prohibiting the use of food and beverages as rewards, so they monitored to ensure that food rewards were not occurring and met with principals and teachers to provide alternative strategies to reward students. Students who were in schools with the nutrition intervention had less than a 1% increase in BMI z-score, compared to control schools that had a 3% – 4% increase in BMI percentile three years post-intervention (Ickovics et al. 2019). These results are very promising, suggesting that with proper support for wellness teams, policy can be implemented, yielding meaningful positive changes in health outcomes.

School Wellness Integration Targeting Child Health program (SWITCH) is an evidence-based multicomponent intervention aimed to support school wellness programs and help prevent childhood obesity. One study by Chen et al. (2018) looked at the feasibility of running this

program through one in-person meeting plus trainings delivered through in an online platform to assist school wellness teams in changing their school's health culture based on local needs. The main goal of the SWITCH implementation was to ensure that each school could custom tailor wellness practices to their needs and continue to run the program autonomously after the study ended. Three key staff members from schools participated in multiple webinars and an in-person conference and were given guidelines with best practice quality elements for recommended strategies. Ultimately schools had the flexibility to determine how program materials could be used. Strengths and challenges were evaluated when wellness leaders participated in self-assessments on their school wellness environments and student health behaviors. Overall, the evaluation supported the feasibility of SWITCH; school-level implementation was moderate to high, which is very encouraging (Chen et al., 2018).

Conclusions

Currently the wellness policy guidelines set forth by the USDA mention the use of food rewards, but leave it up to individual districts to set their own rules regarding their use, as long as the foods chosen adhere to "Smart Snacks" guidelines. Candy and other discretionary foods are not permitted according to the "Smart Snacks" guidelines, but many teachers may not associate classroom rewards with the rules surrounding competitive foods. If wellness policies do not clearly prohibit the use of food rewards, the practice is likely to remain in classrooms. It is clear that having a strong wellness team, with diverse membership can help with implementation of wellness policies and holding districts accountable for meeting goals. It is important for future research to focus on the sustainability, cost, and fidelity to wellness policies so that barriers can be addressed, and implementation can be improved across the board.

Teachers should be trained in how to model healthy behaviors and how to use cost effective alternatives to food rewards. Additionally, training with regard to utilizing classroom management techniques that include behavior- specific praise and physical activity breaks is warranted (Fedewa & Davis, 2015; Prolifi et al., 2017). The wellness teams, teachers, parents, and students can work together to ensure that celebrations, birthdays, and events are made special through nonfood activities that allow for the occasion to be celebrated in a healthy way such as with music, dance, special crafts, or with special or fun clothes. Research regarding the correlation between use of food rewards and the potential changes in reward circuitry in the brain and possible distorted relationship to food with subsequent negative health outcomes is compelling. If school districts adopt wellness policies that prohibit the use of food rewards in the classroom and give support for wellness teams and educators to follow through with implementation, student health is likely to benefit. Fostering a healthy relationship with food early in life is essential so that children are given the opportunity to maintain their natural self-regulation of food intake for proper growth.

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