

Background and Documentation

for the

1999 California Children's Healthy Eating and Exercise Practices Survey

California Department of Health Services

June, 2004

Suggested citation for Background and Documentation:

California Department of Health Services. (2004). *Background and Documentation for the 1999 California Children's Healthy Eating and Exercise Practices Survey* [Online]. Available:

<http://www.dhs.ca.gov/ps/cdic/cpns/research/calcheeps.htm>

Suggested citation for Data Tables:

California Department of Health Services. (2004). *California Children's Healthy Eating and Exercise Practices Survey: 1999 Data Tables* (Table X) [Online]. Available:

<http://www.dhs.ca.gov/ps/cdic/cpns/research/calcheeps.htm>

Introduction

Statement of the Problem

The prevalence of chronic diseases and their precursors among children is staggering. Findings from the Bogalusa Heart Study (1980 to 1994) showed over a quarter of children aged 5 to 10 years had high cholesterol, high blood pressure, or other early warning signs for heart disease. [1] In the U.S., the prevalence of overweight has doubled for children and tripled among teens in the past two decades and continues to rise. [2], [3] National results from 1999-2000 indicate that 15 percent of children aged 6 to 11 and 16 percent of adolescents aged 12 to 19 are overweight. [4] In California overweight among children 9 to 11 years parallels national findings at 15 percent, but the percent of overweight teens 12 to 17 years is lower, reaching 10 percent in 2000. [5], [6] Diabetes rates have been rising with obesity rates. Type 2 diabetes, previously considered an adult disease, has increased dramatically in children and adolescents. [7], [8]

The Surgeon General's Call To Action To Prevent and Decrease Overweight and Obesity: Overweight in Children and Adolescents [12]

- The most immediate consequence of overweight as perceived by children is social discrimination. This is associated with poor self-esteem and depression.
- Risk factors for heart disease, such as high cholesterol and high blood pressure, occur with increased frequency in overweight children and adolescents compared to children with a healthy weight.
- Overweight and obesity are closely linked to type 2 diabetes.
- Overweight adolescents have a 70% chance of becoming overweight or obese adults. This increases to 80% if one or more parent is overweight or obese. Overweight or obese adults are at risk for a number of health problems including heart disease, type 2 diabetes, high blood pressure, and some forms of cancer.

Body Mass Index [3]

Body mass index, expressed as weight/ height² (BMI; kg/m²), is commonly used to classify overweight and obesity among adults, and is also recommended to identify children who are overweight or at risk of becoming overweight. Based on national standards for children, a BMI at or above the 95th percentile for age and gender is considered overweight for children, while one from the 85th to the 95th percentile is considered at-risk for overweight.

Scientific literature highlights dietary intake and physically active lifestyles as key buffers in the fight against chronic disease. Poor diet and inactivity are cross-cutting risk factors that contribute significantly to several leading causes of death, including heart disease, cancer, stroke, and diabetes. [9], [10] Between 50 to 80 percent of diabetes cases are associated with unhealthy eating patterns and sedentary lifestyles. [10], [11] Research with children and teens

suggests that overweight is often caused by lack of physical activity, unhealthy eating patterns, or a combination of these factors. [12] In light of these strong relationships, it is of great concern to health professionals and parents alike that the majority of U.S. children fail to meet the diet and exercise guidelines outlined by the *Dietary Guidelines for Americans* to promote good health. [13], [14]

Only 1 percent of children ate a diet consistent with federal nutrition recommendations according to the 1989 to 1991 Continuing Survey of Food Intakes by Individuals (CSFII). [15] Both national and state surveys show that children's consumption of fruits and vegetables is very low and remains below the recommended minimum of 5 servings a day. The 1994-1996 CSFII found that fruit and vegetable intake among 6-11 year old boys and girls nationally was 3.8 and 3.7 servings, respectively. [16] In 1999 a California State survey of 9-11 year old children found a mean intake of 3.2 and 3.1 servings among boys and girls.¹ [17]

The *Dietary Guidelines for Americans*, along with the National Association for Sport and Physical Education and the Institute of Medicine, recommend that children accumulate 60 minutes of moderate and vigorous physical activity most days of the week. However, fewer than half of California children age 9-11 achieve this much, and 14 percent get fewer than 30 minutes of total activity including light, moderate, and vigorous physical activity. [14], [18], [5] Research also demonstrates that physical activity declines with age. [19], [20] Children, especially girls, become less active as they move through adolescence. [21], [6]

California Children's 5 a Day—Power Play! Campaign

In response to the growing concern about low fruit and vegetable consumption, lack of regular physical activity, and the rise in overweight among children, the Cancer Prevention and Nutrition Section (CPNS) of the California Department of Health Services (DHS) developed and tested the *California Children's 5 a Day—Power Play! Campaign (5 a Day—Power Play!)* from 1993 to 1996. [22] The regional rollout as a statewide social marketing campaign started in 1998 with funds from The California Endowment and the United States Department of Agriculture's Food Stamp Program. The *Campaign* encourages 9-11 year old children to eat at least 5 servings of fruits and vegetables and, more recently, to be physically active for at least 60 minutes every day in order to promote healthy growth, development, and academic achievement.

¹ Caution is warranted when drawing direct comparisons between national and state data because different data collection methods are used.

The *Campaign* selected the 9-11 year old age group as the primary target audience. During this transitional period control of a child's diet shifts from total responsibility of the parent to shared responsibility with the child. Children become more autonomous in making their own food decisions and can participate in meal planning and food preparation. [23] Many children prepare their own breakfasts and snacks. [5] In addition, health beliefs begin to solidify, and interest in nutrition is high. "Food habits, likes and dislikes are established, some of which are transient, but many of which form the base for a lifetime of food choices and experiences." [24] Children remain very impressionable, with parents, peers, and the media influencing dietary behaviors and attitudes toward food. [25] Eating food away from home increases as children become more independent. Market research indicates that children usually make their first independent purchases by 8 years of age. These purchases tended to be at convenience stores and supermarkets with the majority of children buying snack foods. [26] This unique combination of developmental characteristics makes 9-11 year old children an ideal target for nutrition education interventions.

The *5 a Day—Power Play! Campaign* uses a theory-based, multi-channel, community-based approach. [22] It actively involves children in activities at schools, community youth organizations, farmers' markets, supermarkets, and restaurants/foodservice establishments and reaches them indirectly through local promotions and media. Local lead agencies in the *5 a Day—Power Play!* regions receive funding to coordinate a community coalition and oversee the implementation of the *Campaign*. Local efforts are supported every other year by paid television (TV) advertising to increase children's awareness of the fruit and vegetable and physical activity messages as well as the *5 a Day—Power Play! Campaign*.

The behavior change theories of *5 a Day—Power Play!* are the Resiliency Theory [27], which posits that children are more resistant to risks when they have been empowered to make healthy choices for themselves, and the Social Learning Theory [28] which attaches meaning and influence to the interplay of children, their behavior, and the social and physical environment. The *Campaign* addresses both psychosocial and environmental factors, with the two theories being intertwined throughout the messages and activities. The behavioral constructs used in *5 a Day—Power Play!* are knowledge, bonding and belonging, affect, recognition and rewards, norms, skills, and environment.

5 a Day—Power Play! targets multiple determinants of fruit and vegetable consumption among 9-11 year old children. The 1999 *California Children's Healthy Eating and Exercise Practices Survey* was developed to monitor changes in the determinants and consumption of fruits and vegetables to provide guidance for future direction of the *Campaign*. The key *Campaign* determinants assessed in 1999 included:

- Awareness of the *5 a Day—Power Play! Campaign*,
- Knowledge of the recommended fruit and vegetable intake and the health benefits of eating fruits and vegetables,
- Positive attitudes and beliefs related to fruits and vegetables (bonding/belonging),
- Fruit and vegetable preferences (affect),
- Positive reinforcement for healthful eating (recognition/ rewards),
- Social norms favoring the consumption of fruits and vegetables,
- Skills related to selecting and preparing fruits and vegetables, identifying serving sizes, goal setting, and asking and buying behaviors, and
- Environmental factors that facilitate or inhibit healthy choices.

In addition to fruit and vegetable consumption, the *Campaign* uses these determinants as intermediate outcomes to track children's progress towards achieving the 5 a Day goal.

California Children's Healthy Eating and Exercise Practices Survey

The *California Children's Healthy Eating and Exercise Practices Survey (CalCHEEPS)* was developed to fill a gap in the nutrition surveillance of California children. Statewide, there were no population-based, representative surveys of diet and physical activity for children in the upper elementary school grades, resulting in a lack of information to guide the development and refinement of State programs, including the *California Children's 5 a Day—Power Play! Campaign*. The survey was developed in 1998, began in 1999 with funds from The California Endowment and the United States Department of Agriculture's Food Stamp Program, and continues to be administered biennially in odd years.

The *CalCHEEPS* consists of a two-day diary and follow up telephone interview. (See Sample and Methods). It collects information on dietary intake, physical and sedentary activity, weight status, school environment, out-of-home eating, and demographic characteristics, as well as related knowledge, attitudes, beliefs, and campaign awareness. Key foods include fruits and vegetables, higher fiber cereal, dry beans, protein rich foods, milk products, soda and fruit drinks, sweets, and high-fat snacks. Types and servings of foods are requested for each meal and snack time throughout the day. For physical activity, children report type, duration, and intensity. Only duration is collected for sedentary activity.

Sample and Methods

A food diary was mailed to a demographically balanced sample of 2,000 households with children, ages 9-11 years, whose households were registered with an ongoing market research panel. Parental permission was secured for all participants. Parents were asked to assist their child in keeping a diary of foods they ate and the physical activity they did on two consecutive school days. For the dietary portion of the survey, families recorded the types and number of servings of nine key food groups children had consumed for each of six daily eating occasions. The serving size was semi-quantified. A small gift (i.e. pen or pencil, beach ball, Frisbee, etc.) was provided to those who completed and returned the diary. These households were also entered into a raffle for 14 Toys R Us gift certificates ranging from \$25 to \$100.

By the June 8 deadline, 814 children completed this part of the survey. The sampling error was ± 5 percentage points at the 95 percent confidence level. A sub-sample of 394 children took part in a follow-up, non-assisted telephone survey on their knowledge, attitudes, and beliefs about healthful eating and physical activity. The response rate was 41 percent for the diary and 51 percent of diary respondents for the telephone survey that followed.

The 814 participants were almost evenly divided between boys and girls. Forty-three percent were white, 38 percent Latino, 7 percent African-American, and 11 percent Asian/other.² Most children were in the fourth or fifth grades. Almost nine out of ten children attended public school, and 2 percent were home-schooled. Eighteen percent of the children came from households with less than a \$20,000 a year income, and 44 percent came from households with an annual income of \$50,000 or more. One in eight children lived in households receiving Food Stamps.

The white sample was comparable to that from the 1998 Current Population Survey of California (CPS) for the parent's age, household income, and household size. The heads of households in the minority samples tended to be younger than the CPS. The mail and telephone survey results were weighted to reflect the CPS findings for households with children ages 9 to 11 based on race/ethnicity, household income, and number of children in the household between the ages of 9 and 11. This report looks at bivariate relationships unadjusted for any other variables.

² Asian or Pacific Islander (N = 46) and other (N = 21) children were collapsed due to the small sample size for each group.

Limitations

There are limitations on generalizing from this survey. While the response rate was well within the range expected for a parent-assisted mail survey of children, it was lower than that of other self-administered mail surveys, such as those conducted with employees and customers (i.e. respondents with a vested interest). Second, these respondents are a "best-case" sample. As a market-research panel, the children lived in stable households that were interested in research and willing to complete the food and exercise diaries. Third, during weekdays children's schedules are more structured and as a result dietary choices tend to be lower in snacks and fast foods. [29], [30] Fourth, market-research panels tend to under represent African Americans and households with extremely low or high incomes. Finally, all households were English-speaking. These factors could favor higher fruit and vegetable consumption.

In contrast, the time of year was not ideal for fruit and vegetable consumption because the diaries were collected in the early spring, a time of relatively low seasonal availability of fresh produce. Fresh fruits and vegetables are generally preferred over canned or frozen varieties.

In addition, the survey did not explore *Campaign* exposure in all six *5 a Day—Power Play!* intervention channels. The only channel investigated was TV spot recall which included both advertising and public service announcements.

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