

# Dietary Behaviors, Diet Quality, and Obesity among Children from Low-Income Households by Gender of Caregiver and Child: Results from the 2018 California Family Health Study

Fred Molitor, PhD, California State University – Sacramento  
 Celeste Doerr, PhD, Public Health Institute – Center for Wellness and Nutrition

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## Introduction

### Objective

To examine dietary behaviors, diet quality, and childhood obesity by caregiver and child gender.

### Background

Comparisons of children's feeding practices by cohabitating mothers versus fathers have found mixed results. Few studies have examined between-family dietary behaviors by the gender of both caregivers and children. We examined children's dietary behaviors, diet quality, levels of physical activity, and obesity status by caregiver and child gender in low-income California households participating in the 2018 California Family Health Study.

Since 2013, the California Family Health Study telephone survey has been administered annually by California's SNAP-Ed program, CalFresh Healthy Living. The two-part survey includes an adaptation of the ASA24, a validated 24-hour dietary recall methodology (Subar et al., 2012), and a supplemental interview containing questions about physical activity, demographics, and height and weight. Adaptations to the ASA24 permitted administration of the ASA24 via telephone by trained interviewers. The adaptations were made by presenting author Dr. Molitor and the PHI Center for Wellness and Nutrition, in collaboration with the ASA24 developer, Westat.

In the current study, we examined eight outcomes targeted by CalFresh Healthy Living programming: children's intake of fruits and vegetables, water, sugar-sweetened beverages (SSBs), added sugars, and kilocalories; food-only energy density; their levels of physical activity; and weight status.

## Methods

### Participants and Procedure

Households from all 58 California counties were randomly selected from the California Department of Health Care Services Medi-Cal Eligibility Data System database. Participants were 2,242 children (50.9% male, 49.0% female) and their 399 male and 1,843 female caregivers who provided valid dietary data in the 2018 administration of the California Family Health Study. Children's race/ethnicity was 68.5% Latinx, 14.7% White, 12.4% African American, and 3.7% other races/ethnicities.

Households were mailed an introductory letter, followed by a recruitment call. Households that agreed to participate received a packet including measuring cups and spoons and a pictorial portion guide to aid in communicating about portion size, along with a tape measure for measuring height.

Trained interviewers administered first the ASA24 interview, then the supplemental interview to adults and children. Informed consent was verbally obtained from adults for all interviews and assent was obtained from children for their interviews. Dietary variables were computed from the ASA24 data. Supplemental interview data yielded physical activity levels and height and weight, used to compute and categorize BMI (using CDC cutoffs for adults and growth charts for children's BMI; CDC, 2019).

### Analyses

Outcomes were compared across four caregiver by child gender dyads: daughters of male caregivers; sons of male caregivers; daughters of female caregivers; and sons of female caregivers. Linear and logistic regression models controlled for children's race/ethnicity and age.

## Results

### Added Sugars

Female caregivers' sons consumed more teaspoons of added sugars ( $M = 12.90$ ) than did female caregivers' daughters ( $M = 11.28$ ,  $p = .001$ ) or male caregivers' sons ( $M = 11.05$ ,  $p = .018$ ). Female caregivers' daughters did not differ from male caregivers' daughters ( $M = 11.62$ ) in their added-sugars consumption, nor did male caregivers' sons differ from their daughters.

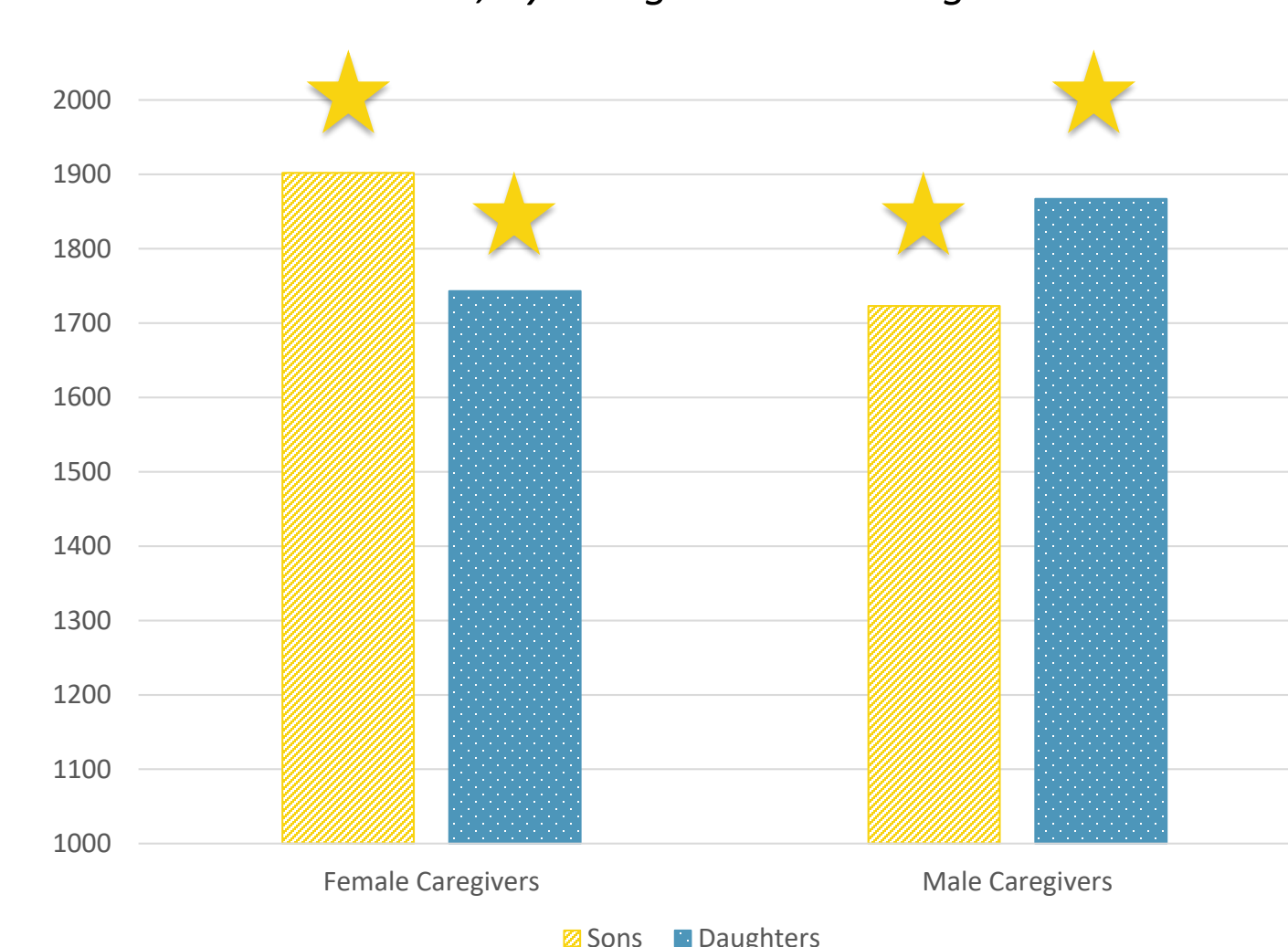
Figure 1. Teaspoons of added sugars children consumed, by caregiver and child gender.



### Kilocalories

Female caregivers' sons consumed more kilocalories than children from the other three caregiver-gender-by-child-gender dyads (all  $ps < 0.05$ ).

Figure 2. Kilocalories children consumed, by caregiver and child gender.

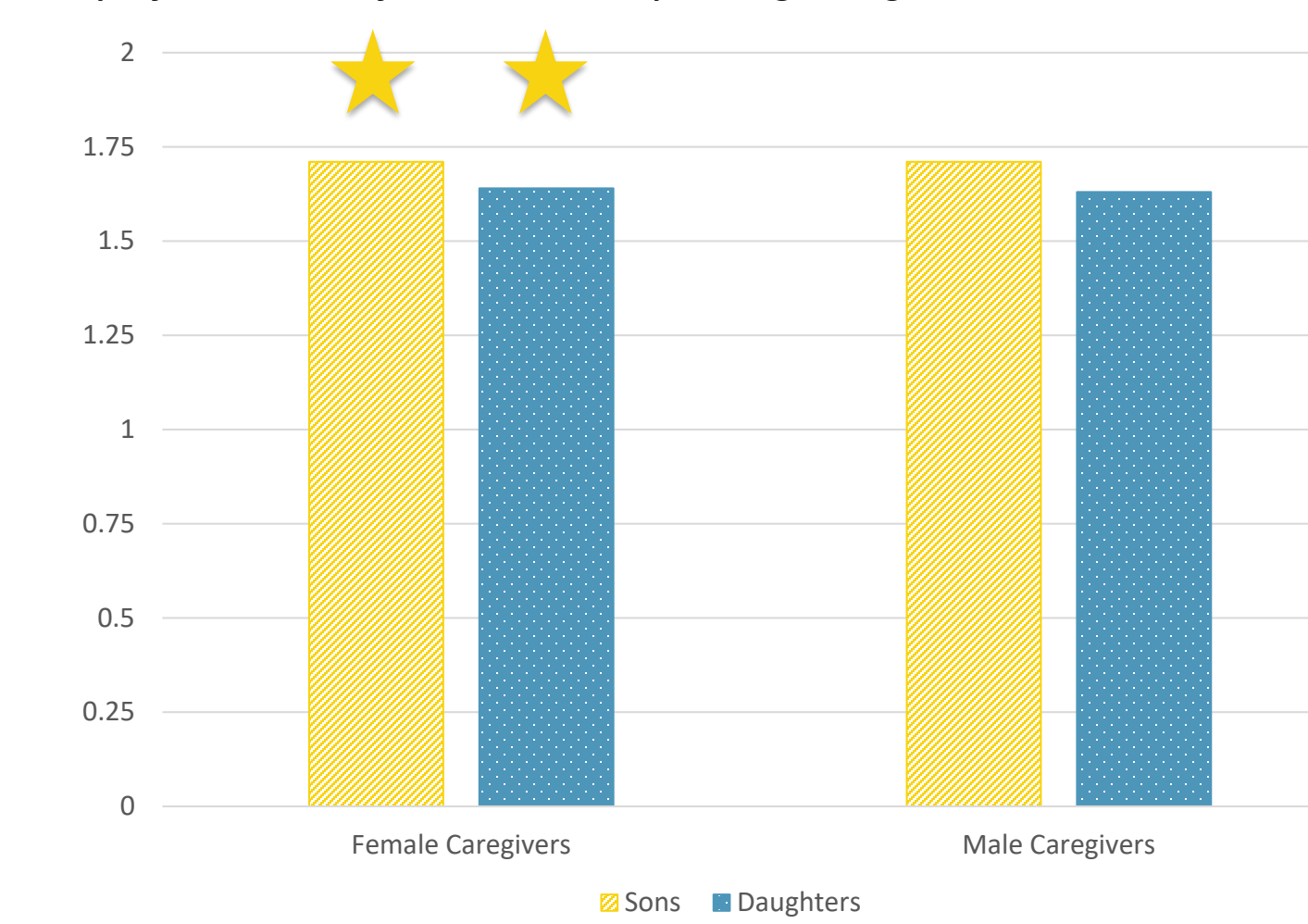


Female caregivers' sons consumed an average 1,902 kilocalories, whereas their daughters consumed 1,743 calories on average. Male caregivers' sons consumed a mean 1,723 kilocalories and their daughters consumed a mean 1,867 kilocalories.

### Food-only Energy Density

Female caregivers' sons ( $M = 1.68$ ) had more energy-dense food intake than did their daughters ( $M = 1.60$ ,  $p = .004$ ).

Figure 3. Energy density of children's food intake, by caregiver gender.

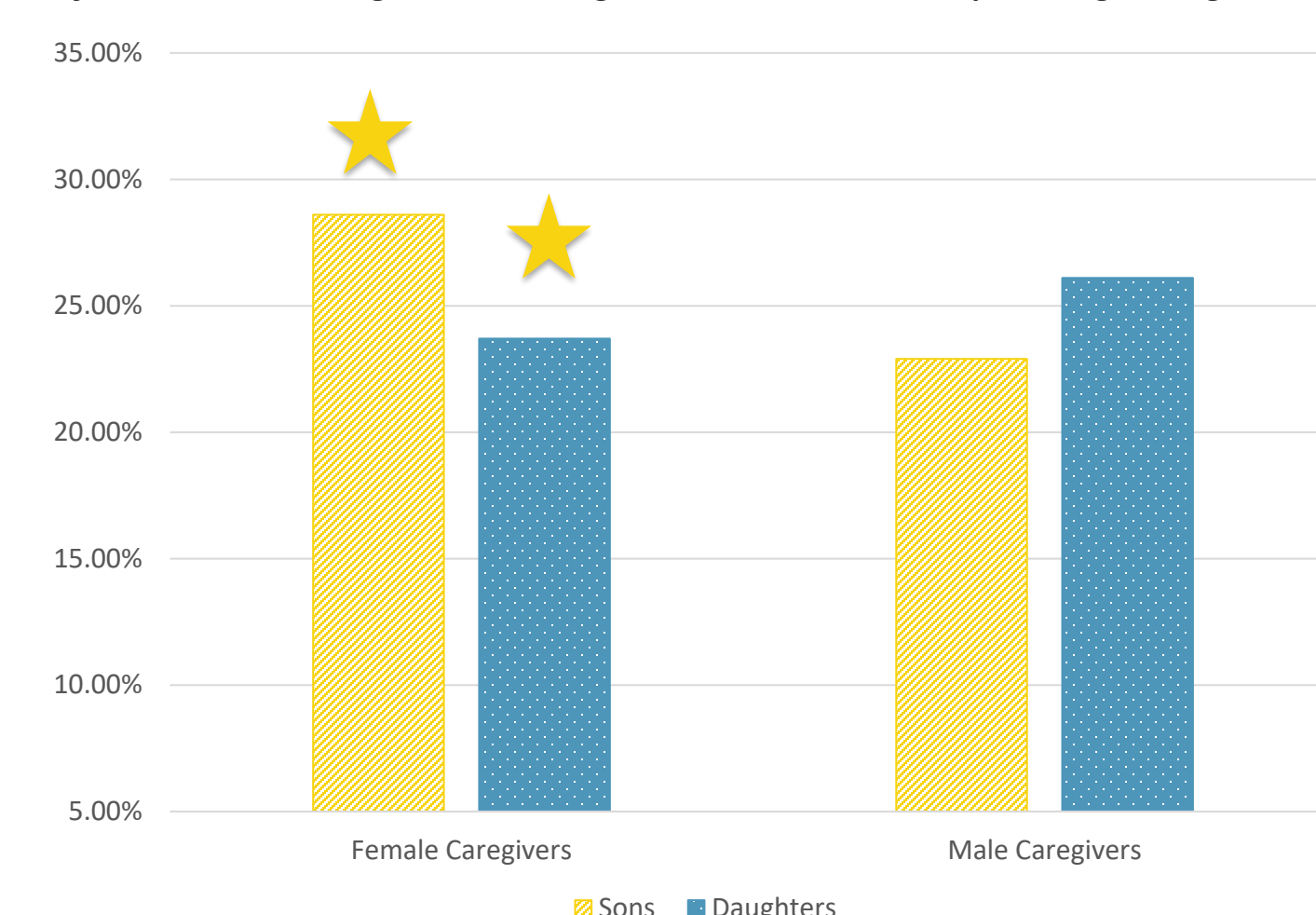


The mean food-only energy density for male caregivers' children was 1.67 for sons and 1.60 for daughters.

### Weight Status

Finally, female caregivers' sons were more likely to be obese (28.6%) than were their daughters (23.7%,  $p = .04$ ). Among male caregivers' children, 22.9% of sons and 26.1% of daughters were obese.

Figure 4. Proportion of sons and daughters categorized as obese, by caregiver gender.



## Discussion

Female caregivers' sons consumed more added sugars and kilocalories than did their daughters. They also had more energy dense food intake. Higher food-only energy density indicates a lower quality diet. Food-only, as opposed to overall, energy density has been considered a preferred indicator of diet quality because it is not overly influenced by the weight of water in caloric and non-caloric beverages (Vernarelli et al., 2015). Among children of female caregivers, a greater proportion of sons than daughters were obese. No such differences were observed between sons and daughters of male caregivers.

Differences between sons of female caregivers and the children of male caregivers in added sugar intake and kilocalories. However, comparisons between children of female and male caregivers should be interpreted cautiously due to unequal cell size and the high  $n$  of female caregivers and their children.

Unique to the existing literature is our between-family comparisons of children's dietary behaviors by caregiver gender and our findings regarding female caregivers' sons. These findings suggest that the focus on female caregivers for nutrition and obesity-prevention public health programs such as SNAP-Ed is warranted. Findings also highlight the need to consider the gender of caregivers' children when designing and implementing interventions and services aimed at low-income families.

## References

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Correspondence: Fred.Molitor@csus.edu

