



Social desirability may explain why some caregivers of overweight children report less frequent high calorie food intake



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1. Introduction

Dietary surveys are commonly used to assess food consumption, but are subject to systematic errors and biases (Ainsworth et al., 2012), including the social desirability bias. Social desirability bias refers to exaggeration of desirable qualities and minimization of undesirable qualities (Baxter et al., 2004). It may influence reporting patterns, including caregiver reports of children's behaviors, potentially altering results (Harper, Schmidt, Cuttress, & Mazmanian, 2014).

Regarding eating behaviors, individuals scoring high on social desirability over-report their own fruit and vegetable consumption (Hebert et al., 2008) and under-report sweets and overall food intake, presumably to appear healthier (Mossavar-Rahmani et al., 2013; Worsley, Baghurst, & Leitch, 1984). In a laboratory setting, participants may over-report intake, with higher social desirability lessening this effect, resulting in more accurate self-reports (Schoch & Raynor, 2012). Some studies have found that social desirability moderates the relationship between self-reported diet and BMI (Klesges et al., 2004); however, other studies have failed to find that social desirability plays a role in the discrepancy between these two factors (Smith, Thompson, Subar,

& Brown, 1998). In children, higher social desirability is negatively associated with reports of food intake, although the relationship is likely more complex and dependent upon both gender and BMI (Guinn, Baxter, Hardin, Royer, & Smith, 2008).

In parenting studies, higher social desirability scores have been correlated with significantly lower scores on parent reports of child maltreatment and children's aggressive behavior, suggesting that some parents present their parenting in a favorable light when their children have problems (Chan, 2012; Merydith, Prout, & Blaha, 2003). Furthermore, low-income mothers view child underweight as a negative reflection on maternal competency. In this case, there may be social desirability effects manifested as over-reporting of children's food consumption (Baughcum, Burklow, Deeks, Powers, & Whitaker, 1998). While social desirability bias has been documented among self-reports of adults' and children's eating behaviors (Klesges et al., 2004), there is a paucity of research examining how caregiver¹ social desirability influences their reports of child dietary intake, specifically among caregivers of overweight children. Higher levels of social desirability in some caregivers of overweight children might explain a lack of correspondence between their reports of dietary intake and child weight.

The overall objective of this study was to determine the potential moderating effect of child weight status (overweight or non-overweight) on the relationship between caregiver-reported child food intake (fruit, vegetables, sweets, snacks, and fast food) and caregiver social desirability. First, we hypothesized that social desirability effects would be greater among caregivers of overweight children (COCs) reporting lower-calorie intake in their children (higher fruits and vegetables; lower sweets, snacks, and fast food) compared to COCs reporting high-calorie intake in their children (lower fruits and vegetables; higher sweets, snacks, and fast food). We did not expect to find these results in caregivers of non-overweight children (CNCs). Second, we hypothesized that child weight (BMI Z-score) would moderate the association between food intake and social desirability, partialling out the effects of demographic factors. Specifically, higher child BMI Z-score would yield a stronger positive association between greater self-reported fruit and vegetable intake and social desirability and a stronger negative association between greater self-reported high calorie food intake and social desirability.

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¹ The term caregiver is operationalized as an individual who has or shares primary responsibility for raising a child.

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2. Method

2.1. Participants

A sample of 229 caregivers (79% biological mothers) and their 2–5 year-old children were recruited from Head Start, a federally funded program for economically disadvantaged young children. As there were missing data, a final sample of 209 participants were included in the study.

2.2. Procedure

This study was part of a larger project approved by the IRB at Fairleigh Dickinson University. Data collection occurred from March 2008 to April 2009. All participants met once with researchers. Over 30 sessions were held in English and Spanish for 2 to 20 child-caregiver dyads at 25 Head Start sites in the New York metropolitan area. At each session, caregivers completed questionnaires and research assistants measured both caregivers' and children's height and weight. Afterward, there was an interactive educational program about motivating children to eat more fruits and vegetables. As an incentive, participants were entered into a raffle to win a food basket or DVD player.

2.3. Measures

Caregivers completed paper and pencil measures in English or Spanish. The Child Food Frequency Questionnaire (CFFQ) was translated from English to Spanish and then back-translated by bi-lingual research assistants for comparison. The CFFQ was based on the 124-item Diet History Questionnaire (Subar et al., 2001) that was shortened to a 32-item measure to reduce participant burden. Specifically, several categories of foods irrelevant to young children were eliminated (e.g. coffee, tea and alcohol). Specific foods were combined into categories (e.g. carrots, peas and other vegetables were combined into "vegetables"). Caregivers reported their children's eating habits, checking 1 of 9 categories ranging from "less than once per month/never" to "4 times per day." Possible scores for each food item ranged from 0 to 120, denoting the frequency of consumption over a month. Four variables were computed for inclusion in the analyses: 1) snacks (summed frequency for chips and salty snacks), 2) sweets (summed frequency of three variables: baked goods; frozen desserts; and candy, syrup, jam and sugar), 3) fruits, and 4) vegetables.

To assess frequency of children eating at fast food restaurants, caregivers checked 1 of the following 4 categories: <1/week or never, 1–3×/week, 4–6×/week, or 7× or more/week (Taveras et al., 2006). Social desirability was assessed with an abbreviated version of the Marlowe-Crowne Social Desirability Scale (MCSD; Ray, 1984). A Spanish language version was available for the MCSD (Reynolds, 1982), and was shortened to correspond to the 8-item English version. In this study, the 8-item scale was found to have Cronbach's α of 0.61. To measure body mass index (BMI), using a calibrated balance-beam scale with stadiometer (Detecto), children's and caregiver's height and weight were taken twice in light clothing by trained research assistants to improve reliability. Caregiver BMI and child BMI Z-score were calculated using the Centers for Disease Control and Prevention (2015) formula and growth charts, and the sample was divided according to CDC guidelines into COCs and CNCs.

3. Results

The sample of caregivers was predominantly female (91.9%) with 53.1% children female. Average child age was 3.9 ± 0.7 and average caregiver age was 34.0 ± 9.3 . The sample was ethnically diverse: 59.8% Latino, 22.5% African American, 5.7% Caucasian, 6.2% Other, 1.9% Asian, and 1.4% Multiracial.

To test our first hypothesis, COCs were examined separately from CNCs, as child weight status was hypothesized to moderate the relationship between food intake and social desirability. Caregivers were organized into tertiles that represented their child's food frequency summed per week (low, medium, and high) for each food category. Groups were not established by cut-off points but sorted into low, medium, and high consumption according to rank. Independent samples *t*-tests were used to compare social desirability between the lowest and highest tertiles on each of the food category variables. Among COCs, there was found no difference in social desirability between caregivers reporting high versus low fruit and vegetable consumption for their children (see Table 1). Those COCs who reported low fast food and low snack consumption had higher social desirability scores compared to caregivers reporting high fast food ($p = 0.013$) and high snack consumption ($p = 0.009$), respectively. Conversely, CNCs that indicated high fast food consumption scored significantly higher in social desirability compared to caregivers indicating low fast food consumption ($p = 0.005$). Otherwise, no other analyses were significant for CNCs.

Second, a hierarchical regression analysis was conducted to examine how child weight status moderated the relationship between fruit, vegetable, fast food, sweet, and snack consumption and social desirability, controlling for demographic variables. First, social desirability was regressed onto caregiver BMI and child ethnicity, age, and gender to control for demographic effects. Next, a regression of social desirability including independent variables (fruit, vegetable snacks, sweets, fast food) and the moderator variable (child BMI Z-score) was performed. In the final regression, two-way product terms were added to the equation.

As described in Table 2, the demographic variables accounted for 8.5% of variance in child social desirability ($p = 0.009$). The unique effect of ethnicity was significant, such that individuals identifying as Latino and African American had higher social desirability ($p = 0.002$ and $p = 0.047$, respectively). By adding independent variables and the moderator variable, an additional 4.8% of variation in social desirability was explained. Finally, adding two-way product terms explained an additional 7.2% of the variability in social desirability. Specifically, the moderating effect between fast food consumption and child BMI Z-score was significant ($p = 0.040$), such that the interaction between child BMI Z-score and fast food consumption impacted social desirability.

4. Discussion

Our findings add to the existing literature addressing the association between social desirability and self-reports of healthy and unhealthy food intake in both adults (Schoeller et al., 2013; Worsley et al., 1984) and children (Jago, Baranowski, Baranowski, Thompson, & Greaves, 2005; Olsen & Heitmann, 2009). The association between caregiver social desirability and caregiver reports of dietary intake in young children was confined to reports of fast food consumption and snacks. Furthermore, snack consumption frequency was not a significant predictor of social desirability when other variables were factored in and when

Table 1

Mean social desirability scores for caregivers of children who are non-overweight vs. overweight, according to food item consumption.

	Caregivers of overweight children (<i>n</i> = 119)			Caregivers of non-overweight children (<i>n</i> = 90)		
	Low intake	High intake	<i>p</i> -Value ^a	Low intake	High intake	<i>p</i> -Value ^a
Fruit	6.50	6.63	0.720	6.70	6.56	0.667
Vegetable	6.39	6.60	0.640	6.41	6.65	0.525
Sweets	6.81	6.18	0.079	6.73	6.20	0.141
Snacks	7.15	6.21	0.009	6.53	6.59	0.893
Fast food	7.38	6.14	0.013	5.44	7.01	0.005

^a As assessed by independent samples *t*-test.

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