



## Social desirability bias in reporting of holiday season healthfulness

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### ABSTRACT

Respondents participating in survey or interview based research often tend to give answers that put themselves in a favorable light, displaying social desirability bias (SDB). Understanding the susceptibility of individuals to underreport their perceived unhealthy holiday behaviors or over report holiday behaviors they perceive as healthy has important implications for health promotion and health policy surrounding the holiday season. This study examines SDB specific to the reporting of holiday food consumption and health-related behaviors. An online survey of 620 U.S. consumers was utilized to collect data in which SDB was accounted for via indirect questioning. The online survey was conducted by Purdue University from November 17–19, 2014. Up to 64% of respondents displayed SDB for the eight holiday health statements studied. Respondents over the age of 45 and without children more frequently displayed social desirability bias. Respondents who displayed SDB with respect to acceptable health related holiday food consumption behaviors may be more susceptible to social pressures surrounding other consumption decision making. Understanding SDB in health and behavior reporting, in particular for the traditionally challenging, in terms of health outcomes, holiday season is critical for health practitioners as they seek to promote healthy behaviors.

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### 1. Introduction

Despite the diversity in celebrations, behaviors, and outcomes, a common holiday season theme is consumption. Weight gain and other health-related consequences of consumption, or overindulgences or “bad” behavior, become evident in the New Year once the holiday celebrations conclude. “Good” behavior can set the pace for the holiday season and the major U.S. holidays celebrated between November and January offer rewards to individuals who have displayed the desired behaviors. These rewards vary widely, from physical rewards like presents, to emotional rewards from holiday gatherings. Even a good reputation, or having been perceived positively by others, can be a reward. A prior study showed that gaining a good reputation activated the reward-related areas of the brain, many of which were the same areas that were activated when subjects received a physical monetary reward (Izuma et al., 2008).

Consuming during the holiday season is not only a way of giving rewards, such as gifts, but is also a way of treating one's self to rewards, such as dessert. The holidays are notorious for decadent food and overindulgence. Health outcomes in terms of the consumption of specific items and total amount of food eaten, physical exercise, and weight gain are common subjects during the holiday season. Fisher and Dubé (2011) asked participants to identify social “rules” around food consumption, finding that the most commonly identified were: *eat more healthy foods*, *avoid unhealthy or fattening foods*, and *eat only until content*. Holiday eating, however, often goes against these social eating rules. Holiday caloric intake has been shown to be significantly different from daily caloric consumption (Khare and Inman, 2009). One study found an increase in weight gain in college students over the Thanksgiving season, especially in those who were already overweight (Hull et al., 2006). Another study found that dinner meals tended to have the highest portions of “negative” nutrients like sodium, saturated fats, and calories (Khare and Inman, 2006).

Having a good reputation can itself be a reward, but overconsumption during the holidays can lead to negative stigmas. Wanting to enjoy holiday indulgences (or overindulgences) while maintaining a respectable reputation can lead an individual to censor their own participation in holiday “bad” behaviors, like overconsumption, or exaggerate their practice of “good” behaviors, like not gaining weight.

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### 1.1. Social desirability bias

Human beings have a natural inclination to protect themselves, including in social situations where one might be concerned with the views that others have of them, their emotional selves, or their perception of themselves. Social desirability bias (SDB) is the tendency of respondents to provide answers or to self-report in a way that is biased towards their perception of a socially acceptable answer which may deviate from the respondent's true behaviors or preferences (Fisher, 1993). SDB stems from the basic human inclination to make oneself look good (Fisher, 1993). This phenomenon is so ubiquitous, it led one researcher to proclaim "[t]he pervasive tendency of individuals to present themselves in the most favorable manner relative to prevailing social norms and mores has threatened to compromise research findings in the social sciences for more than 50 years." (King and Bruner, 2000, p. 80). SDB can manifest as underreporting activities that are socially undesirable or overstating those that are perceived to be socially desirable (Nederhof, 1985).

In the literature, there are ample studies showing evidence of SDB in self-reported health behaviors, including underreporting negative behaviors and over reporting positive ones. Klesges et al. (2004) found that overestimates of self-reported activity, underestimates of sweetened beverage preferences, and lower ratings of weight concerns and dieting behaviors were related to SDB in 8 to 10 year old girls. The authors also suggested additional research into the role of SDB in complicating relationships observed between self-reported diet and/or physical activity and health outcomes of interest (Klesges et al., 2004). In contrast to Klesges et al. (2004); Motl et al. (2005) found minimal evidence of the effect of SDB on self-reports of physical activity. Hébert et al. (2001) found that women with college educations working in the health system tended to underreport caloric intake. Simons et al. (2015) found an underreporting of sedentary gaming hours among non-active videogame playing youths. Adams et al. (2005) suggested that SDB led to an over reporting of physical activity among women in a self-reporting study. Thus, evidence of SDB in self-reporting of health-related behaviors, both in terms of intake/eating and expenditure of energy via activities, is abundant. Given the social nature of the holiday season and the relationship of food consumption (and therefore health) to holiday celebrations and gatherings, we hypothesized that there exists a propensity to over report "good" holiday behaviors (or intended outcomes) and underreport "bad" holiday behaviors (or intended outcomes).

While entirely eliminating biases from survey-based data collection is not possible, data collection methods have been found to be related to SDB. Holbrook et al. (2003) found that for long questionnaires, telephone respondents were more likely to present themselves in a socially desirable way than were in-person respondents. When comparing online versus in-person administration of survey questionnaires Duffy et al. (2005) highlight that an advantage to online surveys is that they avoid interviewer effects, which is a significant advantage when SDB is likely to occur. Comley (2003) found a higher rate of undesirable behavior admission in online surveys than those administered in-person.

Indirect questioning has been shown to mitigate SDB (Fisher, 1993; Lusk and Norwood, 2010). Indirect questioning to account for SDB is straightforward for researchers to employ and easy for survey-takers to answer (Lusk and Norwood, 2010). Using indirect questioning, respondents are asked to answer questions as if they were another person or a member of another group (Fisher, 1993). Previous research in the U.S. has commonly used the "average American" as the comparison group (Olynk et al., 2010; Lusk and Norwood, 2010). When questioned directly respondents tend to give answers about themselves that they perceive will put them in a favorable light but respondents do not have the same concern to make others look good, thus, answers to indirect questions tend to be more truthful (Lusk and Norwood, 2010).

In terms of biases affecting the validity of survey-based research findings, SDB may vary across methods of data collection, topic or

subject area of interest, and the individuals involved (both administering and answering questions). It is generally accepted that the holiday season from November until early January is unique in terms of consumption. Little is known about SDB in reporting of holiday-specific health-related intentions or how holiday health intentions may be related to other factors, such as demographics or retail behaviors. With this in mind, the objectives of this paper are to (1) compare stated holiday health intentions across demographics, (2) estimate SDB in responses from individuals in their holiday health intentions for themselves versus the average American, and (3) compare SDB for each of the holiday-specific statements across demographics.

## 2. Data and methods

An online survey focusing on holiday behaviors, especially those linked to health-related outcomes such as consumption of indulgent foods, was administered from November 17–19, 2014. The timing of data collection was intentionally immediately prior to the start of the holiday season. Respondents were identified and contacted through the use of a large opt-in panel database maintained by Lightspeed, GMI. Respondents were targeted to be representative of the U.S. population in terms of gender, income, education, and geographical region of residence according to the most recent U.S. Census (U.S. Census Bureau, 2014a) and were required to be 18 years of age or older to participate.

In addition to demographics, respondents were asked their level of agreement with eight holiday behavior outcome statements for both themselves and the average American. The direct questions about holiday behavior outcomes were: *I anticipate gaining weight during the holiday season; I will gain more weight during the holiday season than during other times of year; I will make a New Year's resolution to lose weight; I will maintain my workout schedule during the holiday season; I will be vigilant about my weight during the holiday season; I watch what I eat during the holiday season; I will consume more desserts during the holiday season than at other times of the year; and I will consume more alcohol during the holiday season than at other times of the year.* The scale of answers ranged from 1 to 5 in response to the statement "Please indicate how well the statements describe you" adapted from Gould (1988). The specific scale points were (1) *It describes you very well*, (2) *It describes you*

**Table 1**  
Respondent demographics<sup>a</sup>.

Demographic variable	Percent (%) of respondents
Male	47
Education	
Did not graduate from high school	1
Graduated from high school, did not attend college	20
Attended college, no degree earned	28
Attended college, associates or trade degree	15
Attended college, bachelor's degree earned	24
Graduate or advanced degree (M.S., PhD., Law School)	11
Other	1
Annual household pretax income	
Less than \$20,000	19
\$20,000–\$39,999	31
\$40,000–\$59,999	19
\$60,000–\$79,999	13
\$80,000–\$99,999	8
\$100,000–\$119,999	3
\$120,000 or more	7
Region of residence	
Northeast	17
South	37
West	24
Midwest	22

<sup>a</sup> The data for this analysis was collected via an online survey from Purdue University taking place immediately following the holiday season, with data collection on November 17–19, 2014.

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