



## Social desirability bias in reporting of holiday season healthfulness

Nicole J. Olynk Widmar<sup>a,\*</sup>, Elizabeth S. Byrd<sup>a</sup>, S.R. Dominick<sup>a</sup>, Christopher A. Wolf<sup>b</sup>, Lalatendu Acharya<sup>c</sup>

<sup>a</sup> Dept. of Agricultural Economics, Purdue University, 403 West State Street, West Lafayette, IN 47907, United States

<sup>b</sup> Dept. of Agricultural, Food, and Resource Economics, Michigan State University, 446 W. Circle Dr., Rm 317A, Justin S Morrill Hall of Agriculture, East Lansing, MI 48824-1039, United States

<sup>c</sup> Dept. of Consumer Science, Purdue University, Matthews Hall 314, West Lafayette, IN 47907, United States

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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.

\* Corresponding author.

E-mail addresses: [nwidmar@purdue.edu](mailto:nwidmar@purdue.edu) (N.J.O. Widmar), [byrd12@purdue.edu](mailto:byrd12@purdue.edu) (E.S. Byrd), [sdominic@purdue.edu](mailto:sdominic@purdue.edu) (S.R. Dominick), [wolfch@msu.edu](mailto:wolfch@msu.edu) (C.A. Wolf), [lacharya@purdue.edu](mailto:lacharya@purdue.edu) (L. Acharya).

### 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.

fairly well, (3) *It describes you fifty-fifty*, (4) *It describes you a little*, and (5) *This statement does not describe you at all*.

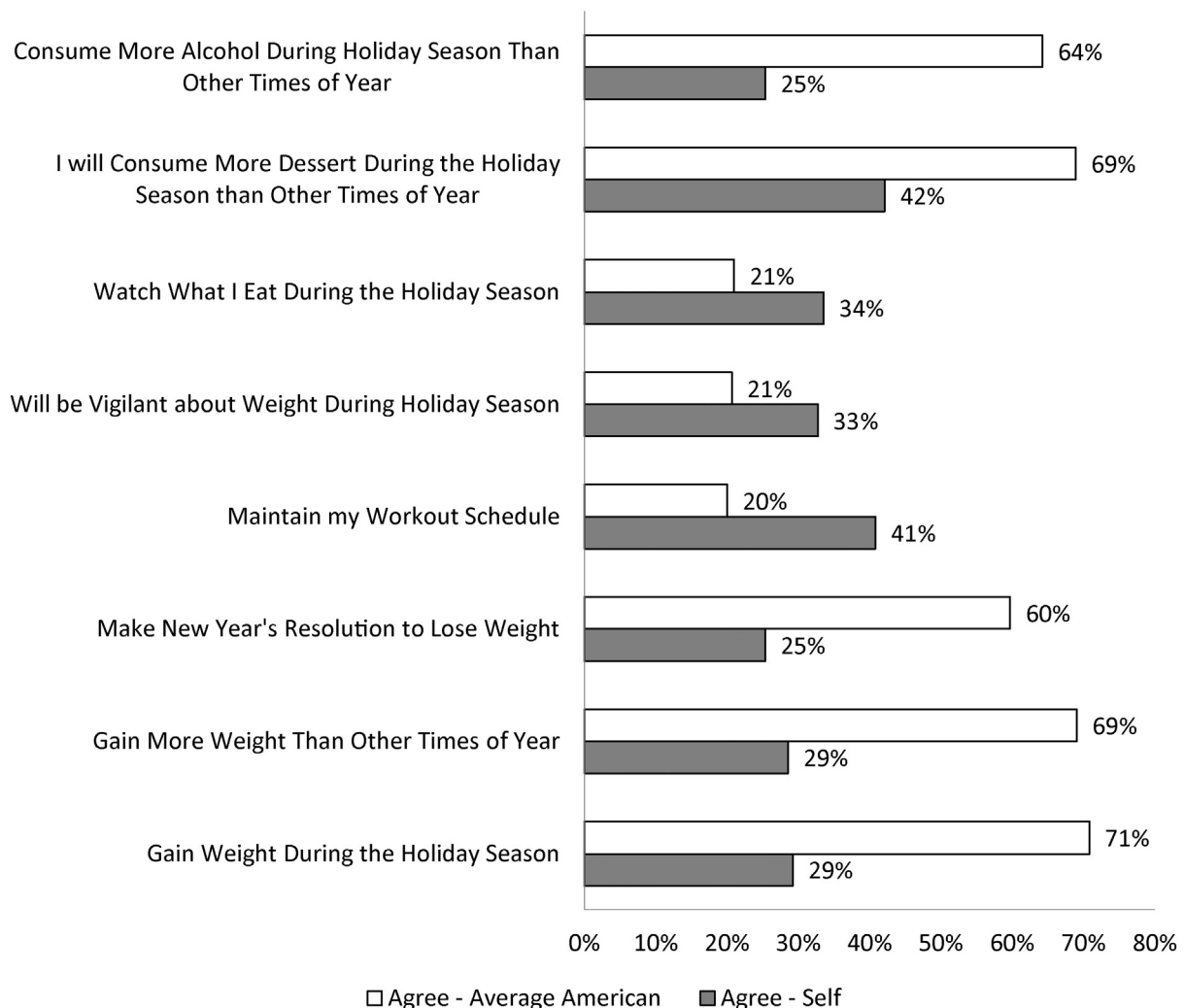
Indirect questions asked respondents to report about the average American, following Lusk and Norwood (2010.) Respondents were asked to consider the following statements: *The average American gains weight during the holiday season; The average American gains more weight during the holiday season than during other times of the year; The average American will make a New Year's Resolution to lose weight; The average American will maintain their workout schedule during the holiday season; The average American will be vigilant about their weight during the holiday season; The average American will watch what he/she eats during the holiday season; The average American will consume more desserts during the holiday season than at other times of the year; and The average American will consume more alcohol during the holiday season than at other times of the year.* A five point scale, similar to that employed in the direct questioning, was used with 1 representing *It describes the average American very well* to 5 representing *This statement does not describe the average American at all*. An index of SDB for each of the eight holiday behavior outcome statements was calculated for each respondent by taking the difference in score they assigned to themselves from the score assigned to the average American; the potential range of differences was  $-4$  to  $4$ . For example, if a respondent assigned themselves a score of 5 and the average American a score of 1, the index value would be 4.

Cross tabulations have been used in a variety of settings including exploring the relationship between demographics and perceptions of online shopping (Morganosky and Cude, 2000), the relationship between pet ownership and sentiments towards animal consumption and concern for animal welfare (McKendree et al., 2014a), and the relationships between demographics and concern for animal welfare (McKendree et al., 2014b). Cross tabulations are employed in this analysis to analyze relationships between holiday behavior intentions and SDB with demographics.

### 3. Results and discussion

A total of 620 respondents completed the survey and their demographic information is shown in Table 1. The mean age of respondents was 48 years old. Males represented 47% of the sample. The mean household size for this study was 2.51 persons, similar to the U.S. average household size of 2.61 persons (U.S. Census Bureau, 2014a). On average, respondents reported spending \$179.16 per week on food. Seventeen percent of respondents resided in the Northeast, 37% were from the South, 22% resided in the Midwest, and 24% were from the West.

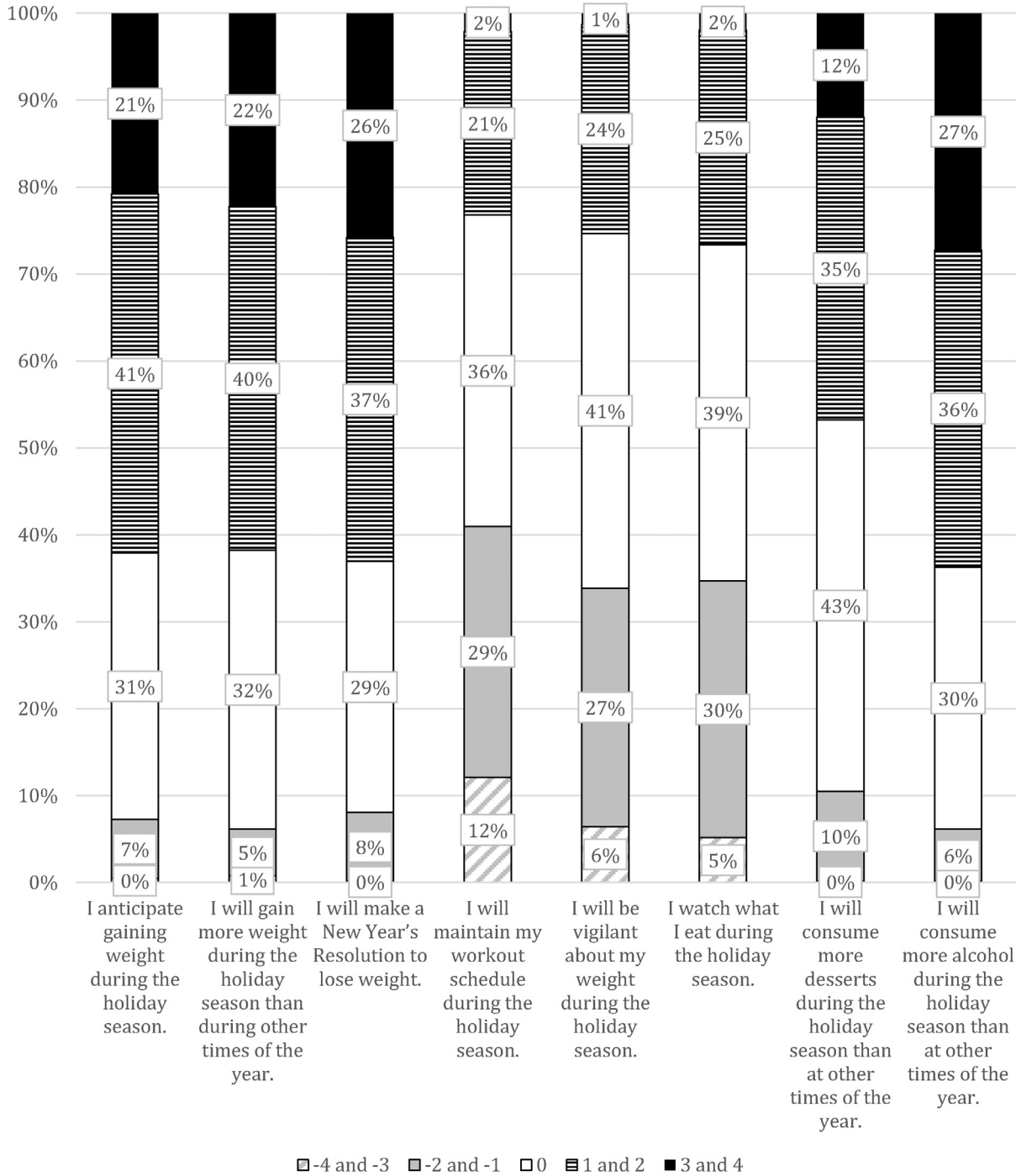
Respondents were asked directly (for themselves) and indirectly (for the average American) about eight holiday behavior outcomes. Fig. 1 displays the percentage of respondents agreeing with each



**Fig. 1.** Self-reported holiday behavior outcomes for self and the average American. To facilitate ease of interpretation the categories (1) "It describes you very well" and (2) "It describes you fairly well" were combined into a single category for the respondent agreeing with the statement. 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.

holiday behavior outcome statement for themselves and the average American. The mean score respondents assigned themselves ranged from a low of 2.92 for *I will maintain my workout schedule during the holiday season* and *I will consume more desserts during the holiday season than at other times of the year* to high values of 3.61 for *I will make a New Year's Resolution to lose weight* and *I will consume more alcohol during the holiday season than at other times of the year*. The mean scores assigned to the average American ranged from 2.09 for *the average American will gain weight during the holiday season* to 3.42 for the

*average American will maintain their workout schedule during the holiday season*. The mean scores respondents assigned to the average American were statistically different from the scores they assigned to themselves at the 5% level for all statements using paired *t*-tests. Respondents agreed more frequently that they would watch what they eat, be vigilant about weight gain, and maintain workout schedules than the average American. On the other hand, respondents agreed more frequently that the average American would consume more alcohol and dessert during the holiday season, make a New Year's resolution to lose weight,



**Fig. 2.** Distribution of SDB. The data for this analysis was collected via an online survey conducted by Purdue University amongst participants from across the United States taking place immediately following the holiday season, with data collection on November 17–19, 2014. An index of SDB for each of the eight holiday behavior outcome statements was calculated for each respondent by taking the difference in score they assigned to themselves (where 1 = describes me very well and 5 = does not describe me at all) from the score assigned to the average American (where 1 = describes the average American very well and 5 = does not describe the average American at all). Thus, the potential range of differences was –4 to 4. For example, if a respondent assigned themselves a score of 5 and the average American a score of 1, the index value would be 4. The SDB Index was collapsed into 5 categories for ease of presentation. The categories are –4 and –3, –2 and –1, 0, 1 and 2, –3 and –4.

gain more weight than at other times of the year, and gain weight during the holiday season than for themselves. Thus, these results are consistent with the theoretical construct of SDB—people report themselves in a way they perceive as socially acceptable, but do not have that same drive to make others look good.

A measure of SDB for each of the eight holiday behavior outcome statements was calculated for each respondent by taking the score they assigned to themselves on the 5 point scale of agreement and subtracting the level of agreement assigned to the average American. SDB can include underreporting negative behaviors or over reporting positive ones. The distribution of the SDB indexed values is shown in Fig. 2. For the statements *I anticipate gaining weight during the holiday season, I will gain more weight during the holiday season than during other times of the year, I will make a New Year's Resolution to lose weight, 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* respondents tended to have a positive score indicating that they agreed more with the statement with regards to the average American (thus assigning it a lower score) than for themselves. In these statements, respondents appeared to be understating their own “bad” behaviors relative to the average American. For example, for *I anticipate gaining weight during the holiday season* respondents agreed more with the statement for the average American than themselves and were underreporting their own negative behavior.

On the other hand, for the statements *I will maintain my workout schedule during the holiday season, I will be vigilant about my weight during the holiday season, and I watch what I eat during the holiday season* respondents tended to agree more with those statements with regard to themselves (and assigned themselves a lower value on the 5 point scale) than the average American yielding negative indices of SDB. In these cases, respondents appeared to be overstating their own

“goodness” relative to the average American. These results were consistent with the hypothesis that survey participants were displaying SDB.

### 3.1. Holiday behaviors and demographics

In order to investigate possible relationships between holiday health intentions and demographics cross tabulations were used. Table 2 shows the results of cross tabulations between self-reported holiday behavior outcomes and demographics. Respondents who reported being under the age of 45 more frequently agreed with the eight holiday behavior outcome statements. Likewise, respondents who reported having at least one child in the household versus having no children or having a vegetarian friend or family member more frequently agreed with the statements. Perhaps younger respondents and those with children are more likely to be health conscious overall and during the holiday season. Likewise, those respondents that agreed that living a healthy lifestyle now could help them live longer more frequently agreed with the holiday behavior outcome statements as opposed to responding to them as neutral. Thus, respondents who believe their choices today will have an impact on the length of their life were more likely to be aware of their behaviors (gaining weight or consuming desserts) and more likely to take steps to mitigate their negative impacts (being vigilant about weight gain or make a New Year's resolution to lose weight).

### 3.2. Social desirability bias

For the purpose of this analysis, respondents who displayed SDB in the expected direction, meaning that they overstated their goodness, or understated their socially undesirable behavior, relative to the average American were considered to have displayed SDB. Those who

**Table 2**  
Cross tabulations of self-reported holiday behavior outcomes and demographics<sup>a</sup>.

		Respondent under 45		Household has children		A friend or family member is vegetarian		Response to statement “I can live longer if I live a healthy lifestyle now.”		
		No (A)	Yes (B)	No (a)	Yes (b)	No (φ)	Yes (χ)	Agree (α)	Neither agree nor disagree (β)	Disagree (γ)
		Percent of respondents								
I anticipate gaining weight during the holiday season.	Agree	20.7 B	39.0 A	26.8 b	35.3 a	26.1 χ	43.9 φ	32.2 β	16.0 α	9.0
	Neutral	25.2	26.5	24.2	30.1	26.1	24.3	23.2 β	37.0 α	45.5
	Disagree	54.1 B	34.5 A	49 b	34.7 a	47.8 χ	31.8 φ	44.6	47.0	45.5
I will gain more weight during the holiday season than during other times of the year.	Agree	19.5 B	39.0 B	25.7 b	25.8 a	24.6 χ	47.7 φ	30.3	21.0	18.2
	Neutral	21.9	27.5	22.6	29.5	25.5	19.6	23.6	28.0	36.4
	Disagree	58.6 B	33.4 A	51.7 b	34.7 a	49.9 χ	32.7 φ	46.2	51.0	45.5
I will make a New Year's Resolution to lose weight.	Agree	16.8 B	35.5 A	23.0 b	31.2 a	21.1 χ	45.8 φ	28.5 β	12 α	0.0
	Neutral	14.4 B	22.0 A	16.3	22.0	17.5	19.6	17.5	19.0	27.3
	Disagree	68.8 B	42.9 A	60.6 b	46.8 a	61.4 χ	34.6 φ	54.0 β	69.0 α	72.7
I will maintain my workout schedule during the holiday season.	Agree	36.9 B	45.3 A	39.6	43.9	37.6 χ	56.1 φ	44.2 β	26.0 α	18.2
	Neutral	24.6	25.8	25.1	25.4	25.5	23.4	24.6	30.0	9.1
	Disagree	38.4 B	28.9 A	35.3	30.6	36.8 χ	20.6 φ	31.2 βγ	44.0 α	72.7 α
I will be vigilant about my weight during the holiday season.	Agree	26.4 B	40.1 A	30.6	38.2	30.0 χ	45.8 φ	37.1 β	13.0 α	9.1
	Neutral	28.2	29.6	27.7	31.8	29.2	27.1	29.3	27.0	27.3
	Disagree	45.3 B	30.3 A	41.6 b	30.1 a	40.7 χ	27.1 φ	33.6 β	60.0 α	63.6
I watch what I eat during the holiday season.	Agree	30.0 B	37.6 A	32.4	36.4	30.0 χ	50.5 φ	37.3 β	16.0 α	18.2
	Neutral	24.3	25.1	23.5	27.7	25.9	18.7	24.0	27.0	36.4
	Disagree	45.6 B	37.3 A	44.1	35.8	44.1 χ	30.8 φ	38.7 β	57.0 α	45.5
I will consume more desserts during the holiday season than at other times of the year.	Agree	33.0 B	62.6 A	38.5 b	51.4 a	41.3	45.8	46.6 β	22.0 α	42.2
	Neutral	27.3	21.3	24.6	24.3	23.6	29.0	22.4 β	35.0 α	27.3
	Disagree	39.6 b	26.1 B	36.9 b	24.3 a	35.1 χ	25.2 φ	31.0	43.0	54.5
I will consume more alcohol during the holiday season than at other times of the year.	Agree	17.1 B	34.8 A	21.9 b	34.1 a	22.8 χ	37.4 φ	28.1 β	13.0 α	9.1
	Neutral	17.4 B	24.7 A	19.5	24.3	20.1	24.3	18.7 β	32.0 α	18.2
	Disagree	65.5 B	40.4 A	58.6 b	41.6 a	57.1 χ	38.3 φ	53.2	55.0	72.7

The letters and symbols in the table represent a statistically significant difference at the 5% level. For example, when reading the “Agree” row of “I anticipate gaining weight during the holiday season”, column A is significantly different that column B at the 5% level.

<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.

**Table 3**  
Cross tabulations of SDB and demographics<sup>a</sup>.

Displayed SDB for the statement	Respondent under 45		Household has children		A friend or family member is vegetarian		Response to statement "I can live longer if I live a healthy lifestyle now."		
	No (A)	Yes (B)	No (a)	Yes (b)	No (φ)	Yes (χ)	Agree (α)	Neither agree nor disagree (β)	Disagree (γ)
	Percent of respondents								
I anticipate gaining weight during the holiday season.	71.5 B	51.2 A	65.5 b	53.2 a	63.9 χ	53.3 φ	64.6 β	50.0 α	54.5
I will gain more weight during the holiday season than during other times of the year.	73.0 B	48.8 A	66.2 b	50.3 a	63.5 χ	53.3 φ	65.6 β	43.0 α	54.5
I will make a New Year's Resolution to lose weight.	73.0 B	51.6 A	65.8 b	56.1 a	65.9 χ	49.5 φ	64.2	54.0	90.9
I will maintain my workout schedule during the holiday season.	42.3	39.4	42.3	37.6	39.6	47.7	44.2 β	27.0 α	18.2
I will be vigilant about my weight during the holiday season.	34.2	33.4	34.7	31.8	33.1	37.4	36.9 β	19.0 α	27.3
I watch what I eat during the holiday season.	38.1	30.7	35.8	31.8	33.5	40.2	38.1 β	17.0 α	36.4
I will consume more desserts during the holiday season than at other times of the year.	58.9 B	32.8 A	50.6 b	37.0 a	46.8	46.7	47.7	41.0	54.5
I will consume more alcohol during the holiday season than at other times of the year.	76.0 B	49.5 A	68.2 b	52.0 a	65.5 χ	55.1 φ	65.6	55.0	64.5

The letters and symbols in the table represent a statistically significant difference at the 5% level. For example, reading the row "I anticipate gaining weight during the holiday season", column A is significantly different that column B and column c at the 5% level.

In the interest of presentation brevity, the values representing the percentage of individuals in each category who did not display SDB have been omitted. Because the values in each column must necessarily sum to 100, omitted values can be calculated. For example, 71.5% of those not under the age of 45 displayed SDB with respect to the statement "I anticipate gaining weight during the holiday season". Thus, 28.5% of respondents not under the age of 45 did not display SDB with respect to the aforementioned statement.

<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.

displayed no bias or assigned a more favorable value to the average American than themselves were classified as not displaying bias. A total of 34 % of respondents displayed SDB for being vigilant about weight during the holiday season. On the high end, 64% displayed SDB for consuming alcohol, 63% for making a New Year's resolution, and 62% for anticipating gaining weight during the holiday season and gaining more weight during the holiday season than at other times of the year.

Table 3 displays the results of comparing displaying SDB for the holiday behavior outcome statements and key demographics. For five of the eight statements, respondents who reported being over 45 and having no children in the household more frequently displayed SDB. The finding that social desirability bias was related to being older is consistent with the findings of Wilcox and King (2000) who found amongst individuals with similar activity levels to their peers older individuals tended to report their levels of physical activity in a more self-favoring light than younger respondents. For half of the statements, respondents who reported not having a friend or family member who is vegetarian displayed bias more frequently. There exists the potential that respondents with no children in the household or vegetarian friends/family do not have their beliefs or statements regularly challenged and are thus more likely to give biased answers. Those that agreed that living a healthy lifestyle now could help them live longer more frequently displayed bias than those who responded as neutral. This is consistent with previous research findings that people generally overestimate the control they have over events and are overly positive about the future (Taylor and Brown, 1988).

**4. Conclusions and implications**

It is well known, particularly with personal or sensitive information, that people naturally respond to questions in such a way as to protect themselves from "bad" perceptions or being viewed negatively by others. However, behavior during the holiday season differs in many ways from the rest of the year. Thus, the holiday season warranted specific consideration with regard to understanding reporting of health-related behaviors by U.S. consumers. This analysis found evidence of SDB with respect to the eight holiday health intentions investigated. Explicit awareness of the propensity to understate one's "bad" behaviors surrounding the holiday season festivities is important for practitioners working to promote healthy behaviors.

As a sample overall, respondents greatly over reported their own "good" behaviors relative to the average American, such as watching what they eat during the holidays or maintaining a workout schedule while simultaneously underreporting their own "bad" behaviors relative to the average American. Large discrepancies in reporting between the individual and the average American were found for every one of the eight holiday health outcome statement investigated, including being vigilant about weight gain, making New Year's resolutions, and consuming more desserts. Respondents 45 years old and older, those without children, and those without vegetarian acquaintances more frequently displayed bias regarding holiday behavior outcomes.

Consumers who display SDB with respect to acceptable health related holiday food consumption behaviors are hypothesized to be more susceptible to social pressures surrounding other holiday traditions and activities and also other health behavior. Previous research has shown that health interventions can increase the level of SDB because participants report behaviors that are perceived to be in line with the objectives of intervention (Kristal et al., 1998). Thus, it is a natural extension to hypothesize that media coverage and health promotion could also increase levels of SDB with respect to holiday behaviors. Thus, it is important to understand the role SDB may play in self-reporting holiday behaviors when designing health promotions and the role health promotions and policies may play in the answers respondents give to self-reported health related questions.

**Conflict of interest**

The authors declare there is no conflict of interest.

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