

It ain't easy eating greens: Evidence of bias toward vegetarians and vegans from both source and target

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Abstract

Vegetarianism and veganism are increasingly prevalent in Western countries, yet anecdotal expressions of negativity toward vegetarians and vegans are common. We empirically tested whether bias exists toward vegetarians and vegans. In Study 1 omnivores evaluated vegetarians and vegans equivalently or more negatively than several common prejudice target groups (e.g., Blacks). Bias was heightened among those higher in right-wing ideologies, explained by heightened perceptions of vegetarian/vegan threat. Vegans (vs. vegetarians) and male (vs. female) vegetarians/vegans were evaluated more negatively overall. In Study 2 omnivores evaluated vegetarians and vegans more negatively than several nutritional outgroups (e.g., gluten intolerants) and evaluated vegan/vegetarians motivated by animal rights or environmental concerns (vs. health) especially negatively. In Study 3, vegetarians and especially vegans reported experiencing negativity stemming from their diets. Empirically documenting antivegetarian/vegan bias adds to a growing literature finding bias toward benign yet social norm-challenging others.

Keywords

discrimination, prejudice, symbolic threats, vegans, vegetarians

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The voluntary abstention from consuming animal flesh dates back to prehistoric times and has continued throughout human history (Spencer, 1996). As of 2012 roughly 5% of Americans self-identify as vegetarians (i.e., those who do not consume meat or fish but might consume dairy or eggs), and 2% as vegan (i.e., those who do not consume meat, fish, dairy, eggs, or any animal by-products; “In U.S., 5% Consider,” 2012). Although these represent small segments of society, these proportions match those of minority groups such as homosexuals (e.g., Laumann, Gagnon, Michael, & Michaels, 1994) or Muslims

(“Table: Muslim Population,” 2011) in the Western world, making vegetarian/vegans similarly worthy of attention. Moreover, vegetarianism and veganism are receiving increased public interest and attention. To illustrate, *Vegetarian*

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Times' print circulation increased 30%, and online traffic increased 70%, from 2010 to 2013 ("Vegetarian Times Now Measured," 2013); two vegan cookbooks currently appear on the *New York Times'* best sellers list in the Food and Fitness category ("Best Sellers: Food and Fitness," 2015); and Google searches for the word "vegan" have steadily increased since 2004 (Sareen, 2013). This rise in interest may be due to recent enthusiasm for vegetarian/vegan diets by celebrities such as Bill Clinton and Ellen DeGeneres (Christian, 2011), studies linking the consumption of meat and animal by-products to negative health (Barnard et al., 2006) and environmental (Herrero et al., 2013) outcomes, and popular media coverage of animal cruelty on factory farms (Kennedy, 2012; Schechter, 2014). As vegetarians and vegans become more visible and politically active, intergroup conflicts between vegetarians/vegans and omnivores are increasingly likely.

These conflicts can range from moderate annoyances to serious maltreatment. As examples of the former, both Paul McCartney (The Canadian Press, 2013) and a Canadian purse manufacturer ("No Meat on Menu," 2010) have received criticism from omnivores for requiring staff to only eat vegetarian meals while working. In examples of more serious conflicts, a Wall Street trader reported enduring repeated verbal abuse and eventual dismissal by his employer due to his vegetarianism (Gregorian, 2009), and a firefighter reported ostracism and assignment to more dangerous tasks after revealing his vegetarianism to coworkers (Messing, 2012). Moreover, an American celebrity chef has even remarked that "Vegetarians are the enemy of everything good and decent in the human spirit" (Bourdain, 2000, p. 70). Anecdotally, therefore, bias against vegetarians and vegans appears to exist. Indeed, the potential for discrimination on the basis of vegetarianism or veganism has recently been recognized by legal experts. In Canada some argue that veganism should be considered a human right ("Veganism a Human Right," 2012), and in the UK vegetarians and vegans are protected from discrimination under the United Kingdom's

Equality Act (Jamieson, 2010). Heeding Crandall and Warner's (2005) call for psychologists to broaden the study of prejudice to include targets considered relatively "acceptable" by society, we examine potential bias (e.g., avoidance, prejudice, discrimination) by omnivores toward vegetarians and vegans. With rates of meat consumption decreasing and rates of vegetarianism increasing in Western countries (Ruby, 2012), this examination is culturally timely, in addition to addressing theoretical questions about intergroup biases.

Vegetarians/Vegans as Symbolic Threats

The previous anecdotal examples suggest that vegetarians and vegans are targets of bias. Needed at this point are empirical examinations of not whether but why vegetarians and vegans are targeted. We propose that, at least in Western society, vegetarians and vegans represent strong threats to the status quo, given that prevailing cultural norms favor meat-eating. Specifically, vegetarians and vegans can represent symbolic threats. As outlined by intergroup threat theory (W. S. Stephan & Stephan, 2000) symbolic threats are intangible threats to an ingroup's beliefs, values, attitudes, or moral standards. These threats originate from the perception that an outgroup's beliefs, values, attitudes, or moral standards are in conflict with those of one's own group. As such, symbolically threatening groups can be perceived as undermining the cherished values of the ingroup (Biernat, Vescio, Theno, & Crandall, 1996). Across various target groups (e.g., immigrants, Costello & Hodson, 2011; W. G. Stephan, Ybarra, & Bachman, 1999; Black people, W. G. Stephan et al., 2002; gay men and lesbians, and fat people, Biernat et al., 1996), perceiving an outgroup as symbolically threatening predicts negative attitudes toward the group (for meta-analytic evidence, see Riek, Mania, & Gaertner, 2006). We propose that vegetarians' and vegans' voluntary abstention from meat-eating, which conflicts with the omnivore majority's values, represents a symbolic threat in ways that contribute to negative attitudes toward these targets.

If this is the case, those most threatened should express the most bias. Theoretically, those endorsing right-wing ideologies such as political conservatism, right-wing authoritarianism (RWA, i.e., conventionality, submission to authority, aggression toward norm violators; Altemeyer, 1996, 1998), or social dominance orientation (SDO, i.e., support for group dominance and group hierarchies; Pratto, Sidanius, Stallworth, & Malle, 1994) are particularly susceptible to such threats. After all, those endorsing right-wing ideologies support the status quo and resist social change (Jost, Glaser, Kruglanski, & Sulloway, 2003). Further, heightened conservatism (Jost et al., 2007), RWA, or SDO (Costello & Hodson, 2011; Hodson, Hogg, & MacInnis, 2009), are associated with heightened outgroup threat perceptions. Critically, perceiving an outgroup as threatening mediates the relation between RWA or SDO and prejudice (Hodson et al., 2009), with value threats explaining associations between SDO and prejudice (Esses, Hodson, & Dovidio, 2003). In the current context, those higher in right-wing ideology may express more negative attitudes toward vegetarians and vegans, in large part, due to the threat that these groups are seen to pose.

Recent work seeking to explain meat-eating and animal exploitation behaviors demonstrates that those endorsing right-wing ideologies (heightened RWA or SDO) are indeed more threatened by vegetarianism (Dhont & Hodson, 2014), with vegetarian ideologies considered threats to cultural customs, identity, and general way of life. Further, Dhont and Hodson demonstrated that perceived vegetarianism threat, along with beliefs in the supremacy of humans over animals, largely explained the heightened meat consumption and animal exploitation by those higher in RWA or SDO. As such, vegetarianism threat may serve as a *legitimizing myth* (Sidanius & Pratto, 1999) to justify behaviors that harm and exploit animals. Although previously untested, this research suggests that vegetarianism threat may similarly explain an association between heightened right-wing ideology and more negative attitudes toward vegetarians and vegans themselves, a previously untested proposition.

Bias Toward Those Resisting Mainstream Ideologies and Practices

Outgroups can be considered threatening because of their actions and behaviors. For example, gay men or lesbians may be perceived as threatening because they engage in “taboo” sexual behavior; immigrants may be perceived as threatening by speaking different languages; religious groups may be perceived as threatening by wearing other religious symbols (e.g., turban, hijab). Interestingly, vegetarians and vegans do not fit this category. Instead of engaging in anti-normative behavior, vegetarians and vegans fail to engage in normative behavior. Thus, vegetarians and vegans may be viewed as threatening in a unique way, enhancing their potential to be targets of bias given their resistance to cultural norms that sanction eating meat.

Other recent work on bias toward groups who abstain from mainstream behaviors are informative here. Asexuals, those who do not experience sexual attraction and do not engage in sexual behavior, are targets of strong bias (Hoffarth, Drolet, Hodson, & Hafer, 2015; MacInnis & Hodson, 2012). Asexuals’ defining lack of desire to engage in behaviors often considered fundamental to human life (i.e., sexuality) renders them targets of prejudice, dehumanization, avoidance, and discrimination (MacInnis & Hodson, 2012). Atheists do not endorse religious beliefs or believe in god(s) and are similarly targets of bias (Gervais, 2013; Gervais, Shariff, & Norenzayan, 2011). These forms of bias are theoretically unique from antivegetarianism/veganism in many ways (e.g., antiatheist prejudice is predicted by mistrust), however, empirically confirming bias toward vegetarians and vegans can add to a growing body of work demonstrating bias toward social norm-challenging others who are characterized by a failure to endorse mainstream ideologies and behaviors. Such groups are generally targeted for bias by the socially dominant (Duckitt, 2006; Hodson, Rush, & MacInnis, 2010) often due to perceived threats they pose to the status quo.

The Current Research

We conducted three studies to empirically examine whether vegetarians and vegans are targets of systematic bias. Overall, we expected that vegetarians and vegans would be targets of bias by omnivores (Studies 1–2), and that vegetarians and vegans would report bias experiences (Study 3). Drawing from previous work establishing bias toward a previously unexamined target group (asexuals; MacInnis & Hodson, 2012), in Study 1 we suggest several criteria to confirm bias toward vegetarians and vegans. First, attitudes toward vegetarians and vegans should approximate, if not be more negative than, attitudes toward other groups that are commonly targets of prejudice (e.g., gay men and lesbians, immigrants, Blacks). Second, those predisposed toward negative evaluations of outgroups generally should be more negative toward vegetarians and vegans (i.e., demonstrating more negative attitudes, avoidance, and discrimination intentions). As suggested in the previous lines, those higher in right-wing ideology and vegetarianism/veganism threat are expected to display heightened bias. Further, stronger ingroup (meat-eating) identification was also expected to predict stronger bias toward vegetarians and vegans given that ingroup identification is typically associated with heightened bias generally (Jetten, Spears, & Manstead, 1996; Lindeman, 1997). Third, there should be positive associations between attitudes toward vegetarians/vegans and attitudes toward other stigmatized outgroups, consistent with the concept of generalized prejudice, whereby outgroup prejudices intercorrelate (Ekehammar, Akrami, Gylje, & Zakrisson, 2004). In Study 2, we compare evaluations of vegetarians and vegans to evaluations of other nutritional and social norm-challenging groups, test whether vegetarians/vegans are evaluated differently based on the motivation (e.g., animal rights, environment, health) behind their vegetarianism/veganism, and examine vegetarian/vegan bias in terms of the stereotype content model (Fiske, Cuddy, Glick, & Xu, 2002).

With regard to the target's perspective, in Study 3 we include some additional criteria. To

the extent that vegetarians/vegans are targets of bias, a substantial proportion of vegetarians/vegans should report: (a) that friends/family decreased contact after learning of their vegetarianism or veganism (i.e., avoidance); (b) anxiety about disclosing vegetarianism/veganism to others; (c) fearing discrimination; (d) experiencing discrimination; and (e) engaging in behaviors to cope with discrimination.

Although we predicted that vegetarians and vegans would be targets of bias overall, the magnitude of this bias was expected to differ systematically across targets: the more the target is perceived as deviant, the more bias predicted toward the target. Thus, we expected that vegans (vs. vegetarians) to be evaluated more negatively by omnivores (Studies 1–2), and to report experiencing more bias (Study 3) given their absolute eschewing of animal consumption. Additionally, we expected that male (vs. female) vegetarians/vegans will be viewed more negatively by omnivores (Studies 1–2) and report experiencing more bias (Study 3) given that meat consumption is generally associated with masculinity (Adams, 1990; Gelfer, 2013; Kramer, 2011) and “feeling manly” (Rothgerber, 2013). As such, men who do not consume meat may violate gender role expectations, and pose a double threat to the status quo relative to female vegetarians/vegans. We also expected that male (vs. female) omnivores would be particularly biased against male vegetarians and male vegans, but that there would be no sex differences on bias toward female vegetarians and female vegans. This pattern would parallel well-established findings that gay men are not only evaluated more negatively than lesbians in general, but that gay men are evaluated more negatively by male (vs. female) heterosexuals (Herek, 2002; Kite & Whitley, 1996). In general, men (vs. women) subscribe to traditional gender roles and gender bias (Aosved & Long, 2006; Black, Oles, & Moore, 1998; Davies, 2004; Sakalli, 2002). Akin to how conservative gender role attitudes explain the sex difference in bias toward gay men (Kerns & Fine, 1994), we expected gender bias to explain the sex difference in bias toward male vegetarians/vegans.

Study 1

To empirically test whether vegetarians and vegans are targets of bias, we first examined omnivores' perceptions of vegetarians and vegans forwarding the hypotheses listed next.

Hypotheses

Hypothesis 1. Vegetarians and vegans will be targets of bias. Specifically, at the mean level, attitudes toward vegetarians and vegans will be similar to (or more negative than) evaluations of common prejudice target groups (e.g., Blacks); vegetarians and vegans are also expected to be targets of discrimination.

Hypothesis 2. In terms of associations, attitudes toward vegetarians and vegans are expected to positively covary with attitudes toward common targets of prejudice.

Hypothesis 3. Exaggerated bias toward vegetarians and vegans will be displayed among the prejudice-prone (e.g., authoritarians).

Hypothesis 4. Associations between right-wing ideology and prejudice toward vegetarians and vegans will be mediated (i.e., explained) by heightened vegetarianism threat.

Hypothesis 5. Vegans, challenging social norms to a greater extent, will be evaluated more negatively than vegetarians.

Hypothesis 6. Bias toward vegetarian and vegan men will be stronger than bias toward vegetarian and vegan women.

H6a. Vegetarian and vegan men (vs. women) will be more negatively evaluated and avoided.

H6b. Omnivore men (vs. omnivore women) will evaluate vegetarian and vegan men more negatively.

H6c. Sex differences on evaluations of vegetarian and vegan men will be explained by gender bias (i.e., ascription to traditional gender roles and modern sexism).

Method

Participants and procedure. Amazon Mechanical Turk workers living in the United States completed a 15- to 20-minute survey for \$.50. Those missing data on one or more measures were excluded, as were nonmeat eaters, leaving 278 omnivores for analysis ($M_{\text{age}} = 35.75$, $SD = 12.79$, 55.4% women, 82.4% White, 84.2% with post-secondary education, 71.9% employed, 86.0% nonstudents).

Materials. Materials are described in what follows. For all multi-item scales confirmatory factor analyses demonstrated single-factor solutions.¹

Right-wing authoritarianism (RWA). The 12-item RWA scale (Altemeyer, 1996) was employed using scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Ratings were averaged after reverse-scoring appropriate items. Higher scores indicated greater RWA ($\alpha = .94$).

Social dominance orientation (SDO). The 16-item SDO scale (Pratto et al., 1994) was employed using the same 7-point scale noted before. Ratings were averaged after reverse-scoring appropriate items. Higher scores indicated greater SDO ($\alpha = .96$).

Conservatism. Three items tapped political orientation generally, regarding social policy, and regarding economic policy (Skitka, Mullen, Griffin, Hutchinson, & Chamberlin, 2002), on scales ranging from 1 (*very liberal*) to 7 (*very conservative*). Ratings were averaged; higher scores indicated greater conservatism ($\alpha = .92$).

Gender bias. Swim Aikin, Hall, and Hunter's (1995) old-fashioned (five items, $\alpha = .76$) and modern (eight items, $\alpha = .91$) sexism scales were used on 1 (*strongly disagree*) to 7 (*strongly agree*) scales.

After reverse-scoring appropriate items, each set of ratings were averaged. Higher scores represented greater ascription to traditional gender roles or modern sexism.

Ingroup (meat-eating) identification. If indicating meat consumption, participants rated three items: (a) the importance of being a meat-eater for their identity; (b) perceived similarity to meat-eaters; and (c) attachment to meat-eaters (on 1 [*not at all*] to 7 [*very much*] scales; following Hodson, Harry, & Mitchell, 2009). After averaging, higher scores represented stronger ingroup identification with meat-eaters ($\alpha = .87$).

Vegetarianism/veganism threat. Eight items from Dhont and Hodson's (2014) Vegetarianism Threat Scale (e.g., "Eating meat is part of our cultural habits and identity and some people should be more respectful of that") were adapted to assess threat from both vegetarianism and veganism. We also added one additional item ("Vegetarians/vegans think they are better than meat eaters")² and reverse-keyed two of Dhont and Hodson's items. All items were assessed on scales ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). After reverse-scoring appropriate items, items were averaged. Higher scores represented heightened vegetarianism/veganism threat ($\alpha = .87$).

Attitude thermometers. Evaluations of vegetarian women, vegetarian men, vegan women, vegan men, lesbians, gay men, immigrants, asexual women, asexual men, atheists, drug addicts, Black women, and Black men were each tapped with widely used attitude thermometers (MacInnis & Hodson, 2012). These scales, divided into 10° range increments, ranged from 0–10° (*extremely unfavorable*) to 91–100° (*extremely favorable*). Vegetarians were defined as those not consuming meat or fish but may consume dairy and/or eggs; vegans were defined as those not consuming animal products or byproducts (e.g., no meat, fish, dairy, eggs). For gay men and lesbians, asexual men and women, and Black men and women, ratings were averaged into an overall evaluation of the group in question (i.e., homosexuals, asexuals,

Blacks). Higher scores indicated a more positive evaluation of the group.

Discrimination intentions. Comfort with renting to and hiring a person belonging to each of the groups listed before were tapped on scales ranging from 1 (*not at all*) to 7 (*very much*; MacInnis & Hodson, 2012).

Avoidance of vegetarians/vegans. The extent to which participants avoid eating around and interacting generally with vegetarians/vegans were each tapped on scales ranging from 1 (*not at all*) to 7 (*very much*). Openness to making friends with a vegetarian/vegan man, openness to making friends with a vegetarian/vegan woman, and openness to having a vegetarian/vegan romantic partner, were each assessed on the same scales. Each was assessed through a single item.

Familiarity with vegetarians/vegans. Participants indicated familiarity with vegetarians and vegans on a 1 (*not at all*) to 7 (*very much*) scale: "What is your knowledge of the group [insert] (i.e., do you know what it means to be [insert], have you heard of this group before, etc.)?" Participants also indicated how many vegetarians or vegans personally know.

Results and Discussion

Hypothesis 1: Vegetarians and vegans as targets of bias. As predicted, attitudes toward vegetarians and vegans were equivalent to, or more negative than, evaluations of common prejudice target groups. As displayed in Table 1, both vegetarians and vegans were evaluated equivalently to immigrants, asexuals, and atheists, and significantly more negatively than Blacks. Vegetarians were evaluated equivalently to homosexuals, whereas vegans were evaluated more negatively than homosexuals. Strikingly, only drug addicts were evaluated more negatively than vegetarians and vegans. In terms of discrimination, however, omnivores did not indicate any less willingness to hire or rent to vegetarians or vegans relative to other groups. Participants actually

Table 1. (Study 1). Bias as a function of target group.

	Possible range	<i>F</i>	<i>df</i>	Vegetarians	Vegans	Homosexuals	Immigrants	Asexuals	Atheists	Drug addicts	Blacks
Attitudes											
Thermometer	1–10	97.23***	7, 1939	6.80 _a	6.38 _b	6.77 _a	6.55 _{ab}	6.59 _{ab}	6.52 _{ab}	3.67 _c	7.19 _d
Discrimination											
Hire	1–7	83.29***	7, 1939	6.05 _a	5.97 _{ac}	5.59 _{ac}	5.37 _b	5.84 _a	5.59 _c	2.29 _d	5.93 _a
Rent	1–7	391.04***	7, 1939	6.41 _a	6.38 _a	6.00 _{bc}	5.53 _d	6.14 _b	5.91 _c	2.08 _c	5.96 _c

Note. *N* = 278. Within rows, means sharing a subscript do not differ significantly from one another; means not sharing a subscript differ at $p < .05$. No significant differences were observed when separating bias toward homosexuals, asexuals, and Blacks by sex.

*** $p < .001$.

indicated more willingness to hire vegetarians than immigrants, atheists, or drug addicts, more willingness to hire vegans over immigrants and drug addicts, and more willingness to rent to vegetarians or vegans than all other target groups. Results were equivalent if excluding ethnic minority participants (except that evaluations of vegetarian and Black targets did not significantly differ). In terms of experiencing bias, therefore, vegetarians and vegans are clear targets of relatively more negative attitudes, but not more hiring or housing discrimination. Thus, we confirm H1 with regard to evaluations but not discrimination.

Hypothesis 2: Positive associations with attitudes toward other prejudice target groups. Evaluations of both vegetarians and vegans were positively associated with evaluations of all target groups evaluated ($r_s .29-.62, p_s < .001$), supporting H2.

Hypothesis 3: More negative evaluations among prejudice-prone persons. Consistent with H3, exaggerated bias toward vegetarians and vegans was displayed among prejudice-prone persons (see Table 2). Stronger right-wing ideology (RWA, SDO, or conservatism), gender bias, ingroup identification, and vegetarianism/veganism threat were associated with more negative attitudes toward both vegetarians and vegans. Further, right-wing ideologies (RWA, SDO, or conservatism) were associated with lower willingness to rent to a vegetarian, hire a vegan, or rent to a vegan; stronger gender bias was associated with lower willingness to rent to a vegetarian, hire a vegan, or rent to a vegan;

stronger ingroup identification was associated with lower willingness to hire a vegetarian, rent to a vegetarian, or rent to a vegan; and higher vegetarianism/veganism threat was associated with lower willingness to hire a vegetarian, rent to a vegetarian, hire a vegan, or rent to a vegan (see Table 2). Stronger right-wing ideology (RWA, SDO, or conservatism), gender bias, ingroup identification, and vegetarianism/veganism threat were also each positively associated with the avoidance of vegetarians/vegans, and negatively associated with openness to relationships with vegetarians/vegans.

Hypothesis 4: Vegetarianism/veganism threat as mediator. We tested six models whereby right-wing ideology (RWA, SDO, or conservatism) predicted evaluations of vegetarians or vegans through heightened vegetarianism/veganism threat. We used maximum likelihood estimation in AMOS 20.0, including all paths ($df = 0$) and employing bootstrapping ($N = 1,000$) to estimate the indirect effect significance (IE; Kline, 2011). In all cases, right-wing ideology (RWA, SDO, or conservatism) predicted vegetarianism/vegan threat, and vegetarianism/vegan threat predicted more negative evaluations of vegetarians and vegans. Critically, the zero-order relations between right-wing ideology and evaluations of vegetarians or vegans (see Table 2) were substantially diminished with inclusion of vegetarianism/veganism threat in the model (see Figure 1). The indirect effects of RWA, SDO, or conservatism on evaluations of vegetarians (IE $\beta_s = -.29, 95\% \text{ CI } [-0.22, -0.37]$; $-.26, 95\% \text{ CI } [-0.19, -0.33]$;

Table 2. (Study 1). Associations between bias toward vegetarians and vegans and bias-relevant individual difference variables.

	RWA	SDO	Conservatism	Gender bias		Ingroup identification	Vegetarianism/ veganism threat	Mean (SD)
				Old sexism	Modern sexism			
Attitudes								
Vegetarian attitude thermometer	-.29***	-.39***	-.27***	-.37***	-.32***	-.38***	-.59***	6.80 (2.30)
Vegan attitude thermometer	-.28***	-.40***	-.27***	-.35***	-.31***	-.37***	-.58***	6.38 (2.57)
Discrimination								
Hire vegetarian	-.08	-.10	-.01	-.14*	-.08	-.16*	-.18**	6.05 (3.41)
Rent to vegetarian	-.31***	-.38***	-.20**	-.40***	-.22**	-.26***	-.43***	6.41 (1.23)
Hire vegan	-.21**	-.18**	-.15*	-.23***	-.13*	-.09	-.18**	5.97 (3.43)
Rent to vegan	-.31***	-.39***	-.20**	-.40***	-.22**	-.27***	-.41***	6.38 (1.27)
Avoidance								
Avoid vegetarians/vegans (general)	.23***	.37***	.20**	.40***	.27***	.29***	.53***	1.54 (1.15)
Avoid vegetarians/vegans (eating)	.21**	.29***	.16**	.33***	.24***	.30***	.45***	1.75 (1.41)
Open to friendship with vegetarian/vegan man	-.25***	-.25***	-.18**	-.33***	-.23***	-.28***	-.45***	5.47(1.98)
Open to friendship with vegetarian/vegan woman	-.28***	-.30***	-.22***	-.30***	-.23***	-.25***	-.48***	5.59 (1.91)
Open to vegetarian/vegan romantic partner	-.35***	-.28***	-.24***	-.23***	-.15*	-.40***	-.53***	5.11 (1.99)
Mean	2.82	2.40	3.33	2.90	3.75	3.57	2.93	
(SD)	(1.53)	(1.24)	(1.59)	(1.11)	(1.32)	(1.64)	(1.22)	

Note. $N = 278$. Partial correlations controlling for familiarity with vegetarians and vegans are largely equivalent to those presented here. For attitude thermometers, results are presented collapsing across target sex given that correlations did not vary as a function of target sex with two exceptions: the correlation between attitudes toward vegetarians and ingroup identification was of greater magnitude for vegetarian men ($r = -.40$) than vegetarian women ($r = -.34$) targets, $\zeta = -2.68, p < .001$, and the correlation between attitudes toward vegans and old-fashioned sexism was of greater magnitude for vegan men ($r = -.37$) than vegan women ($r = -.31$) targets, $\zeta = -2.65, p < .01$.

* $p < .05$. ** $p < .01$. *** $p < .001$.

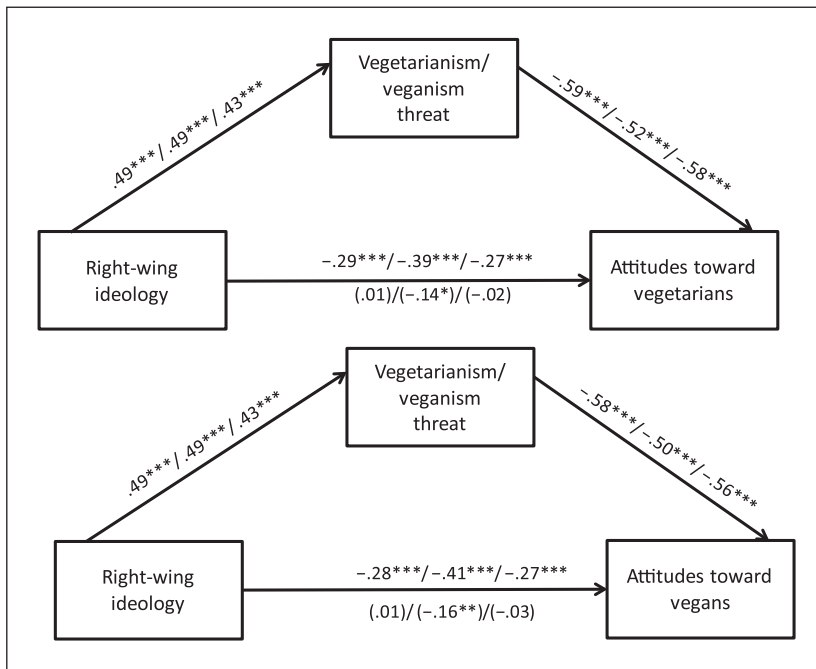


Figure 1. (Study 1). $N = 278$. Standardized estimates are shown. Note that separate models were run for each type of right-wing ideology, but estimates are presented together in figures for brevity. Estimates for RWA as the exogenous variable appear first, estimates for SDO as the exogenous variable appear second, and estimates for conservatism as the exogenous variable appear third. Values in parentheses are those after controlling for the mediator.

* $p < .05$. ** $p < .01$. *** $p < .001$.

-.25, 95% CI [-0.18, -0.33], respectively, $ps \leq .002$) or vegans (IE β s = -.29, 95% CI [-0.21, -0.37]; -.24, 95% CI [-0.18, -0.32]; and -.24, 95% CI [-0.17, -0.32], respectively, $ps = .002$) were significant, accounting for 60–100% of the total effects. Associations between right-wing ideology and prejudice toward vegetarians and vegans were fully (for RWA or conservatism) or partially (for SDO) explained by vegetarianism/veganism threat. Thus, if not for being more threatened by vegetarianism/veganism, those higher in RWA or conservatism would not express more negative attitudes toward vegetarians or vegans, and those higher in SDO would not express as negative attitudes toward vegetarians or vegans.

Hypothesis 5: Greater bias toward vegans than vegetarians. Consistent with H5, evaluations of vegetarians

and vegans were positively correlated ($r = .91$, $p < .001$) but differed significantly at the mean level, with vegans evaluated more negatively than vegetarians (see Table 1).

Hypothesis 6: Greater bias toward vegetarian and vegan men (vs. women). As displayed in Table 3, omnivores overall evaluated vegetarian men more negatively than vegetarian women, but more positively than vegan men and women. Vegan men were evaluated most negatively, with vegetarian men, vegetarian women, and vegan women evaluated more favorably. Participants overall also indicated more openness to making friends with a vegetarian/vegan woman, $M = 5.59$, $SD = 1.92$, than man, $M = 5.46$, $SD = 1.99$, $t(277) = -2.09$, $p = .038$, supporting H6a. Clearly, omnivores are more favorable toward female (vs. male) vegetarians and vegans.

Table 3. (Study 1). Bias toward vegetarians and vegans as a function of target sex.

	Possible range	<i>F</i>	Vegetarian men	Vegetarian women	Vegan men	Vegan women
Attitudes						
Thermometer	1–10	29.02***	6.68 _a	6.92 _b	6.32 _c	6.44 _d
Discrimination						
Hire	1–7	0.55	6.23 _a	5.87 _{ab}	6.13 _b	5.81 _{ab}
Rent	1–7	1.88	6.40 _{ab}	6.42 _{ab}	6.36 _a	6.41 _b

Note. $N = 278$. Within rows, means sharing a subscript do not differ significantly from one another; means not sharing a subscript differ at $p < .05$. Mean differences for discrimination should be interpreted with caution as omnibus.

*F*s were not significant.

*** $p < .001$.

Additionally, supporting H6b, omnivore men evaluated vegetarian men, $M = 6.35$, $SD = 2.38$ significantly more negatively than did omnivore women, $M = 6.94$, $SD = 2.43$, $t(276) = -2.02$, $p = .044$. Omnivore men, $M = 5.99$, $SD = 2.70$ also evaluated vegan men marginally more negatively than did omnivore women, $M = 6.59$, $SD = 2.60$, $t(276) = -1.88$, $p = .060$. No sex differences were observed on evaluations of vegetarian or vegan women (t s $< |1.36|$, p s $> .176$).

To examine our hypothesis that the sex difference on evaluations of vegetarian and vegan men would be explained by heightened gender bias (H6c), we tested a model whereby participant sex (man = 1, woman = 0) predicted evaluations of male vegetarians through both old-fashioned and modern sexism. Using maximum likelihood estimation in AMOS 20.0, all possible paths were included ($df = 0$) and bootstrapping ($N = 1,000$) was employed to estimate the significance of the indirect effect (IE; Kline, 2011). Participant sex predicted both old-fashioned ($\beta = .31$, $p < .001$) and modern sexism ($\beta = .38$, $p < .001$), and both old-fashioned ($\beta = -.29$, $p < .001$) and modern sexism ($\beta = -.19$, $p < .01$) predicted more negative attitudes toward male vegetarians. The relation between sex and evaluations of male vegetarians ($r = -.12$, $p < .05$) was reduced to nonsignificance upon inclusion of old-fashioned and modern sexism in the model ($\beta = .04$, $p = .519$). The indirect effect of sex on evaluations was significant (IE $\beta = .16$, $p = .002$) and represented 100% of the total effect. Follow-up

analyses based on 1,000 bootstrapped samples using Hayes's (2013) PROCESS macro revealed that the IE operated through both old-fashioned (IE 95% CI [0.21, 0.71]) and modern sexism (IE 95% CI [0.09, 0.64]).

Results were similar when testing this model with evaluations of vegan men as the criterion. Here the relation between sex and evaluations of male vegans ($r = -.11$, $p = .060$) was reduced with old-fashioned and modern sexism included in the model ($\beta = .05$, $p = .435$). The indirect effect of sex on evaluations of vegan men was significant (IE $\beta = .16$, $p = .002$), found to be operating through both old-fashioned (IE 95% CI [0.21, 0.77]) and modern sexism (IE 95% CI [0.15, 0.76]) in follow-up analyses (Hayes, 2013). Thus, gender bias accounts for the sex difference on evaluations of vegetarians and vegans.

Summary. Overall, Study 1 confirms that vegetarians and vegans are indeed targets of bias. Attitudes toward vegetarians and vegans were equivalent to (or more negative than) attitudes toward several commonly stigmatized groups, and attitudes toward all stigmatized targets were positively correlated. Further, vegans (the group most challenging social norms) were evaluated most negatively. In general, those especially prone to prejudice reported more bias toward vegetarians and vegans, and associations between right-wing ideology and negative attitudes toward veg(etari)ans were at least partially explained by perceptions of vegetarians/vegans as threatening. Finally,

male vegetarians and vegans were evaluated more negatively than female vegetarians and vegans, respectively, and male (vs. female) omnivores evaluated vegetarian and vegan men more negatively, with this sex difference explained by gender bias.

Study 2

To further understand bias toward vegetarians/vegans, we conducted a second study of potential biases among omnivores. We were interested in evaluations of vegetarians and vegans relative to other nonnormative nutritional groups (e.g., gluten intolerants) as well as other groups challenging social norms (e.g., feminists). Given that a variety of motivations can underlie vegetarianism/veganism, we also assessed whether evaluations differ based on the *motivation* behind one's vegetarianism/veganism (e.g., animal rights, environmental concerns, personal health). Finally, we examined bias toward vegetarians and vegans within the stereotype content model (Fiske et al., 2002). According to this model, key dimensions of group stereotypes involve warmth and competence, with different combinations of warmth and competence serving distinct intergroup functions. Groups characterized by low warmth and low competence are targets of contempt, disgust, anger, and resentment; groups characterized by low warmth but high competence are targets of envy and jealousy; groups characterized by high warmth/low competence are targets of pity and sympathy; and groups characterized by high warmth/high competence are admired. Thus we assessed omnivores' perceived warmth and competence of vegetarians and vegans to better understand the nature of the prejudice involved within a broader intergroup context. Based on anecdotal reactions to vegans/vegetarians, we had no reason to posit that they would be considered incompetent, but they were expected to be rated low in warmth (i.e., smug, seemingly superior, and judgmental).

Hypotheses

Hypothesis 1. Attitudes toward vegetarians and vegans will be more negative than attitudes

toward the ingroup (omnivores), as well as more negative than attitudes toward other nutritional minority groups (gluten-free, lactose intolerant, those with religious-based diets).

Hypothesis 2. Attitudes toward vegetarians and vegans will be equivalent to (or more negative than) attitudes toward other groups challenging social norms (feminists, environmentalists).

Hypothesis 3. Attitudes toward vegetarians and vegans will be more negative when the motivation behind vegetarianism/veganism is animal rights (vs. personal health or environmental motivations).

Hypothesis 4. Vegetarians and vegans would be viewed lower in warmth than competence.

Method

Participants and procedure. Amazon Mechanical Turk workers living in the US completed a 10-minute survey for \$0.35. Nonmeat eaters were excluded, leaving 280 omnivores for analysis ($M_{\text{age}} = 33.90$, $SD = 12.30$, 51.1% women, 75% White, 89.3% with postsecondary education, 67.9% employed, 78.6% nonstudents).

Materials. Materials are described next. For all multi-item scales confirmatory factor analyses demonstrated single-factor solutions.³

Attitude thermometers. Evaluations were tapped toward: vegetarian women, vegetarian men, vegetarians for animal rights reasons, vegetarians for personal health reasons, vegetarians for environmental reasons, vegan women, vegan men, vegans for animal rights reasons, vegans for personal health reasons, vegans for environmental reasons, people who eat gluten free by choice, people who eat gluten free due to celiac disease, lactose intolerant people, people who follow a diet for religious reasons, omnivore women, omnivore men, feminist women, feminist men, and environmentalists (with similar scales as Study 1). Ratings separated by sex were averaged into an overall

Table 4. (Study 2). Bias as a function of target group.

Possible Range	Nutritional groups										Groups challenging social norms					
	Vege	Vege-anim	Vege-health	Vege-enviro	Vege-vegi	Vega	Vega-anim	Vega-health	Vega-enviro	GF-choic	GF-ce	LI	Diet relig	OMNI	Fem	Enviro
Attitude thermometer	1-10	6.65 _{ac}	6.64 _a	7.48 _{bj}	6.95 _{ck}	6.06 _{dm}	6.49 _e	7.31 _{fp}	6.70 _a	5.60 _h	7.99 _{il}	7.66 _j	7.10 _{kp}	7.89 _l	6.25 _{mo}	7.16 _{kp}

Note. $N = 280$. Omnibus $F(14, 2906) = 47.42, p < .001$. Means sharing a subscript do not differ significantly from one another; means not sharing a subscript differ at $p < .05$. When separating by target sex, both vegetarian and vegan men were evaluated more negatively than vegetarian and vegan women, respectively, $p < .001$. No significant differences were observed when separating attitudes toward omnivores or feminists by sex. If excluding all “nutritional” minority participants leaving $N = 214$, results were equivalent with the exception that the following pairs of attitude thermometer ratings did not differ significantly: vegetarian for animals and vegan for animals, vegetarian for health and vegan for health, vegan for animals and vegan for the environment, vegan for animals, feminists.
 Vege = vegetarian; Vege-anim = vegetarian for animals; Vege-health = vegetarian for health; Vege-enviro = vegetarian for environment; Vega = vegan; Vega-anim = vegan for animals; Vega-health = vegan for health; Vega-enviro = vegan for environment; GF-choic = gluten-free by choice; GF-ce = gluten-free celiac disease; LI = lactose intolerant; Diet relig = diet for religious reasons; Fem = feminist; Enviro = environmentalist.

evaluation of the group in question; for example evaluations of vegan men and vegan women were aggregated into evaluations toward vegans in the interest of brevity.

Stereotype content. Participants rated both vegetarians and vegans on competence (using a 5-item scale) and warmth (using a 4-item scale), ranging from 1 (*not at all*) to 5 (*extremely*; Fiske et al., 2002).

Results and Discussion

Hypothesis 1: Bias toward vegetarians and vegans relative to other nutritional groups. As displayed in Table 4, attitudes toward both vegetarians and vegans were more negative than attitudes toward omnivores. Attitudes toward both vegetarians and vegans overall were also more negative than attitudes toward those eating gluten free due to celiac disease, lactose intolerants, and those following a diet for religious reasons. Attitudes toward both vegetarians and vegans were more positive, however, than attitudes toward those eating gluten free by choice. Surprisingly, this group was evaluated most negatively of all groups. As in Study 1, vegans were evaluated more negatively than vegetarians.

Hypothesis 2: Bias toward vegetarians and vegans relative to other groups challenging social norms. In terms of overall evaluations, both vegetarians and vegans were evaluated more negatively than environmentalists, vegetarians were evaluated more positively than feminists, and vegans were evaluated equivalently to feminists.

Hypothesis 3: Motivations behind vegetarianism/veganism. As expected, those who are vegetarian for animal rights reasons, were evaluated more negatively than those who are vegetarian for health reasons or environmental reasons. Those who are vegetarian for environmental reasons were also evaluated more negatively than those who are vegetarian for health reasons. The same pattern was observed for vegan targets (see Table 4). It appears that omnivores evaluate

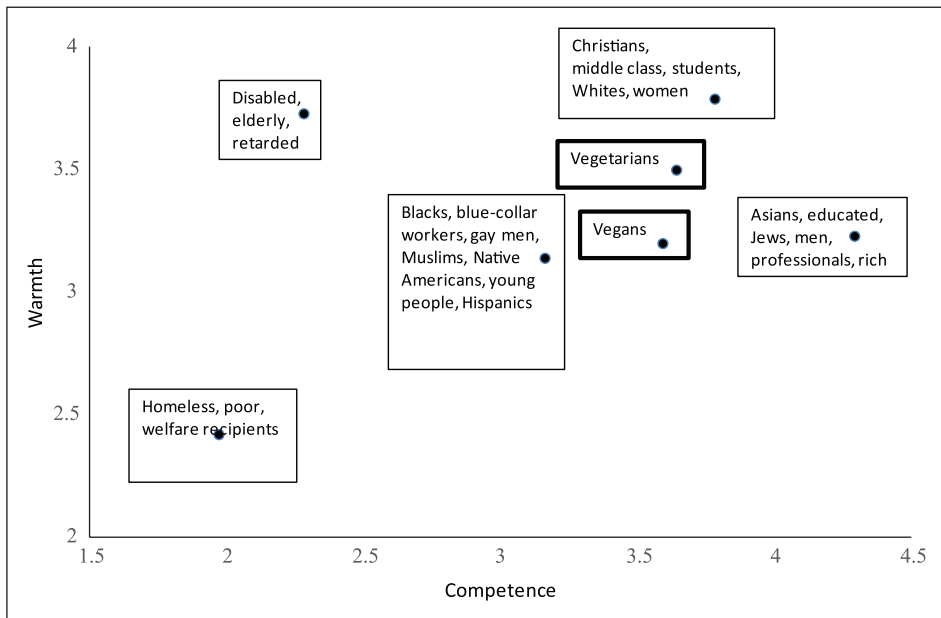


Figure 2. Figure and data are based on Fiske et al. (2002, Figure 3), with exception that vegetarians and vegans are added to the figure based on data from Study 2.

vegetarians/vegans more negatively when their motivations concern social justice rather than personal health.

Hypothesis 4: Stereotype content. Not unlike many group stereotypes (Fiske et al., 2002), the content of vegetarian and vegan stereotypes was mixed. That is, both vegetarians and vegans were perceived to be lower in warmth, vegetarian $M = 3.50$, $SD = 0.82$; vegan $M = 3.20$, $SD = 0.93$ than competence, vegetarian $M = 3.64$, $SD = 0.75$; vegan $M = 3.59$, $SD = 0.79$, $t(279) > 3.49$, $ps < .001$. Fiske et al. (2002) suggest that groups stereotyped along these lines (e.g., Asians, educated people, men, professionals, and rich people) are targets of envious prejudice. These groups are generally perceived as high status, better off than others, and hostile in intent. This is consistent with a symbolic threat-based account of vegetarian/vegan prejudice and the common perception that vegetarians/vegans believe that they are better than others. See Figure 2 for our findings (integrated with those of Fiske et al., 2002). Vegetarians were viewed as both more

competent and warmer than vegans, $t(279) > 2.30$, $ps < .022$, consistent with our assertion that the greater the deviation from cultural norms the greater the bias.

Summary. Study 2 further demonstrates vegetarians and vegans as targets of bias, revealing additional nuances regarding the nature of this bias. Vegetarians/vegans are evaluated negatively relative to the omnivore ingroup and several other nutritional groups and environmentalists. Vegetarians and vegans were evaluated equivalently to those following a gluten-free diet by choice or feminists. Evaluations of vegetarians and vegans certainly differ, however, based on motivation behind vegetarianism/veganism, with animal rights motivations evaluated most negatively. Why one abstains from eating meat, it appears, is relevant to the degree of prejudice expressed. Finally, Study 2 demonstrated that both vegetarians and vegans are perceived as higher in competence than warmth, likely rendering them targets of envious prejudice (Fiske et al., 2002).

Study 3: Target (Vegetarian/Vegan) Experiences of Bias

Upon establishing that omnivores demonstrate bias toward vegetarians and vegans, we next examined vegetarian and vegan experiences of bias. Such convergent evidence is valuable in identifying prejudice toward a previously unexamined target group. We propose three hypotheses consistent with the findings of Studies 1 and 2 to establish this convergent evidence.

Hypotheses

Hypothesis 1. Vegetarians and vegans experience negativity as a result of their target membership.

Hypothesis 2. Vegans (vs. vegetarians) will report more negative experiences.

Hypothesis 3. Vegetarian and vegan men (vs. women) will report more negative experiences.

Method

Participants and procedure. Participants recruited through classified websites (e.g., Craigslist, Kijiji), vegetarian/vegan online groups (e.g., vegweb, veggieboards), a lab Facebook page, and vegetarian/vegan Facebook groups (e.g., Vegetarian, Vegan, Vegan Planet) completed an online survey with participation entitling access to two draws for CAN \$50.00. Those missing data on one or more measures were excluded as were meat-eaters, leaving a sample of 371 participants, $M_{\text{age}} = 34.41$, $SD = 12.23$, 62.8% vegan (35.8% vegetarian; 1.3% indicated that they do not eat meat but did not identify as vegetarian or vegan), 76.5% women, 82.7% White, 92.2% with postsecondary education, 77.6% employed, 74.9% nonstudents, 91.1% residing in Canada or the United States. Most participants were vegetarian or vegan for a year or more (92.5% of vegetarians and 84.5% of vegans).

Materials. Materials are described in what follows. For all multi-item scales confirmatory factor

analyses demonstrated single-factor solutions,⁴ with the exception of anxiety about revealing vegetarianism/veganism (see following lines).

Contact decrease. Participants indicated (yes/no) whether any family members or friends decreased or ceased contact upon revealing their vegetarianism/veganism.

Anxiety about revealing vegetarianism/veganism. Participants indicated the extent to which they felt awkward, self-conscious, happy, accepted, confident, irritated, impatient, defensive, suspicious, and careful at the prospect of revealing their vegetarianism/veganism to an omnivore, on scales ranging from 1 (*not at all*) to 7 (*very much*), a modification of the Intergroup Anxiety Scale (W. G. Stephan & Stephan, 1985). Factor analysis revealed a two-factor solution, with negative emotions loading on one factor (loadings .51–.77) and positive emotions loading on another (loadings .49–.82). Negative items were averaged with higher scores indicating higher anxiety ($\alpha = .86$). Positive items were reversed-scored (for ease of interpretation) and averaged with higher scores indicating higher anxiety ($\alpha = .73$).

Fear of discrimination. Four items adapted from Carvallo and Pelham's (2006) Perceptions of Personal Discrimination Scale, and three adapted from Sjoberg, Walch, and Stanny's (2006) Gender-Related Fears subscale of the Transgender Adaptation/Integration Measure, were rated on 1 (*not at all*) to 7 (*very much*) scales to assess fear of discrimination due to vegetarianism/veganism (e.g., "I fear [or have feared] that I will be treated unfairly because of my vegetarianism/veganism"). After reversing appropriate items, items were averaged. Higher scores represented higher fear of discrimination ($\alpha = .93$).

Everyday discrimination. Participants rated 10 items (three new, seven adapted from Williams, Yu, Jackson, & Anderson, 1997) assessing the frequency of experiencing everyday discrimination, on a 6-point scale with the following anchors: 1 (*never*), 2 (*less than once a year*), 3 (*a few times a year*), 4

(*a few times a month*), 5 (*at least once a week*), 6 (*almost every day*; e.g., “As a result of your vegetarianism/veganism you are treated with less courtesy than other people”). Items were averaged; higher scores represented more frequent experience of everyday discrimination ($\alpha = .90$).

Heightened vigilance. Six items measured the frequency with which participants experience heightened vigilance regarding potential discrimination (Williams, 2014) on scales with the following anchors 1 (*never*), 2 (*rarely*), 3 (*sometimes*), 4 (*most of the time*), 5 (*always*; e.g., “How often do you try to prepare for insults before leaving home?”). Items were averaged; higher scores represented more frequent experience of heightened vigilance ($\alpha = .83$).

Coping with discrimination. Seven items (adapted from McNeilly et al. [1996] and Krieger [1990]) assessed different ways of coping with discrimination on scales with the following anchors: 1 (*never*), 2 (*hardly ever*), 3 (*not too often*), 4 (*fairly often*), 5 (*very often*), 6 (*does not apply because I have never had any negative experiences to respond to*; e.g., “Tried to do something,” “Accepted it as a fact of life”). For those selecting between 1 and 5 on the items (given that choosing 6 indicated that the item did not apply), items were averaged. Higher scores indicated more frequent use of discrimination coping mechanisms ($N = 292$, $\alpha = .68$).

Major discrimination. Participants indicated (yes/no) whether they have experienced four types of major discrimination (losing a job or promotion, not being hired for a job, being prevented from moving into a home, being denied a bank loan) as a result of their veg(etari)anism (based on Sternthal, Slopen, & Williams, 2011). Higher scores represented more reported discrimination.

Results and Discussion

Hypothesis 1: Negativity from vegetarianism or veganism. Overall, a substantial proportion of participants experienced negativity from their vegetarianism/veganism (see Table 5). Most

notably, almost one quarter of vegan participants reported that a friend decreased contact after the participant revealed their veganism, over one third of both vegetarian and vegan participants scored above the scale midpoint on anxiety about revealing vegetarianism/veganism (negative emotion items), and over 40% of vegetarian participants and over half of vegan participants reported experiencing at least some everyday discrimination, engaging in activities to prepare for potential discrimination, and engaging in discrimination coping mechanisms. A small proportion of vegan participants even reported experiencing major discrimination. Many negative experiences were also intercorrelated, such that experiencing one form of negativity was associated with experiencing another form of negativity (see Table 6).

Hypotheses 2 and 3: Vegans (vs. vegetarians) and men (vs. women) will report more negative experiences.

To test Hypotheses 2 and 3, a series of regression analyses were conducted. Each criterion variable (see Table 7) was regressed on vegetarian type (vegetarian vs. vegan) and participant sex (man vs. woman) on Step 1, and their product on Step 2. As expected, vegans reported more negative experiences than vegetarians on several measures. For instance, more vegans than vegetarians reported having friends or family decrease or cease contact with them upon revealing their veganism or vegetarianism, respectively. Vegans (vs. vegetarians) also reported experiencing greater anxiety (more negative emotions) about revealing group membership, greater fear of discrimination, more everyday discrimination, and more heightened vigilance. More vegans than vegetarians also reported not being hired for a job due to their group membership. These findings partially support Hypothesis 2.

Hypothesis 3 received little support. Men did not report more negative experiences than women with the one exception: more men than women reported being unfairly denied a job or promotion due to their vegetarianism/veganism, supporting the notion that for men the perceived

Table 5. (Study 3). Proportion of vegetarians/vegans experiencing negativity due to vegetarianism/veganism.

	% of vegetarians	% of vegans
Friend(s) decreased contact after P revealed vegetarianism/veganism (i.e., responded yes)	3.8	24.5
Friend(s) ceased contact after P revealed vegetarianism/veganism (i.e., responded yes)	1.5	7.3
Family member(s) decreased contact after P revealed vegetarianism/veganism (i.e., responded yes)	3.8	9.9
Family member(s) ceased contact after P revealed vegetarianism/veganism (i.e., responded yes)	0.8	3.0
Scored above scale midpoint on anxiety about revealing vegetarianism/veganism (more negative emotions)	31.6	33.5
Scored above scale midpoint on anxiety about revealing vegetarianism/veganism (less positive emotions)	12.8	19.3
Scored above scale midpoint on fear of discrimination	14.3	22.3
Reported experiencing at least some everyday discrimination (i.e., scoring 2 or higher on everyday discrimination scale)	45.9	66.5
Reported engaging in at least some activity to prepare for potential discrimination experiences (i.e., scoring 2 or higher on heightened vigilance)	42.9	66.5
Reported engaging in at least some discrimination coping mechanisms (i.e., scoring between 2 and 5 on coping with discrimination scale)	56.3	77.0
Reported having been unfairly denied a job or promotion due to vegetarianism/veganism	0	2.6
Reported having been not hired for a job due to vegetarianism/veganism	0	9.0
Reported having been prevented from moving into a home due to vegetarianism/veganism	0	0
Reported having been unfairly denied a bank loan to vegetarianism/veganism	0	0

Note. Vegetarian $N = 133$; vegan $N = 233$.

consequences of their diet is greater than for women. There were also no significant interactions between vegetarian type and sex. Therefore, although omnivores reported more negativity toward male (vs. female) vegetarian and vegan targets in Studies 1 and 2, male (vs. female) vegetarians and vegans in Study 3 did not report feeling more targeted.

Summary. Employing a large community sample we confirm that vegetarians and vegans experience notable bias. A sizeable proportion report bias-relevant experiences as a result of their vegetarianism/veganism and vegans report more negative experiences than vegetarians. Contrary

to expectations and Study 1 and 2 findings, however, male (vs. female) veg(etari)an targets did not consistently report more negative experiences.

General Discussion

Across three studies, examining bias sources (i.e., omnivores) and bias targets (i.e., vegetarians and vegans), the current work empirically confirms vegetarians and vegans as targets of bias. Unlike other forms of bias (e.g., racism, sexism), negativity toward vegetarians and vegans is not widely considered a societal problem; rather, negativity toward vegetarians and vegans is commonplace and largely accepted. Consider the finding that

Table 6. Correlations among vegetarians' and vegans' negative experiences (Study 3).

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	Mean (SD)
1. Friend decrease contact		.63***	.38***	-.01	.10	.02	.32***	.36***	.38***	.13	-	-	1.04 (0.19)
2. Friend cease contact	.42***		.63***	-.01	.18*	.09	.20*	.36***	.28**	.14	-	-	1.01 (0.12)
3. Family decrease contact	.21**	.29***		.44***	.11	.11	.14	.22*	.13	.11	-	-	1.04 (0.19)
4. Family cease contact	.19**	.34***	.36***		.10	.09	.01	-.02	-.02	-.20*	-	-	1.01 (0.09)
5. Anxiety about revealing (more negative emotions)	.12	.14*	.09	.11		.25***	.56***	.50***	.59***	.14	-	-	3.55 (1.33)
6. Anxiety about revealing (less positive emotions)	-.03	.03	.15*	.08	.42***		.17	.01	.14	.01	-	-	3.33 (1.21)
7. Fear of discrimination	.26***	.26***	.21**	.25***	.52***	.34***		.66***	.65***	.24**	-	-	2.78 (1.52)
8. Everyday discrimination	.37***	.31***	.28***	.27***	.44***	.21**	.64**		.65***	.36***	-	-	2.45 (0.88)
9. Heightened vigilance	.34***	.21**	.20**	.18**	.55***	.26**	.59**	.66***		.15	-	-	2.44 (0.75)
10. Coping with discrimination ¹	.16*	.21**	-.07	-.07	.30***	.05	.31***	.42***	.38***		-	-	2.78 (0.52)
11. Unfairly denied job/promotion	.10	.06	.04	.13*	.01	.01	.23***	.19**	.10	.02	-	-	1.00 (0.00)
12. Not hired for job	.03	.09	.20**	.30***	.16*	.08	.34***	.27***	.16*	.10	.23***	-	1.00 (0.00)
Mean	1.24	1.07	1.10	1.03	3.24	3.15	2.38	2.06	2.02	2.69	1.03	1.09	
(SD)	(0.43)	(0.26)	(0.30)	(0.17)	(1.55)	(1.19)	(1.41)	(0.77)	(0.75)	(0.70)	(0.16)	(0.29)	

Note. Vegetarian $N = 133$, vegan $N = 233$, except where noted. Vegetarian correlations are presented above the diagonal, vegan correlations are presented below the diagonal. For these analyses, dichotomous scales (Items 1, 2, 3, 4, 11, 12 in the table) were coded such that higher values denote a response of “yes.”

¹Coping with discrimination analyses include only those participants for whom the variable was calculated (vegetarian $N = 95$; vegan $N = 193$). Given null variability, major discrimination regarding housing and bank loans were excluded. There was also null variability for major discrimination regarding jobs among vegetarians. Given high correlations between the fear of discrimination, everyday discrimination, and heightened vigilance scales, an exploratory principle components analysis (with direct oblimin rotation, given anticipated correlation among factors) of the items from the three scales was performed. This revealed three components with eigenvalues greater than 1: everyday discrimination (loadings ranging from .53 to .81), heightened vigilance (loadings ranging from .64 to .80), and fear of discrimination (loadings ranging from .51 to .92).

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 7. Regression analyses (Study 3).

Criterion	Predictors		
	Vegetarian type	Sex	Vegetarian Type x Sex interaction
	β	β	β
Friend(s) decreased contact after P revealed vegetarianism/ veganism	-.27***	.06	-.11
Friend(s) ceased contact after P revealed vegetarianism/ veganism	-.13**	-.01	-.22
Family member(s) decreased contact after P revealed vegetarianism/veganism	-.11**	-.04	-.11
Family member(s) ceased contact after P revealed vegetarianism/veganism	-.07	.01	.14
Anxiety about revealing vegetarianism/ veganism (more negative emotions)	.10*	.02	.20
Anxiety about revealing vegetarianism/ veganism (less positive emotions)	.07	-.01	.55
Fear of discrimination	.13*	.01	.37
Everyday discrimination	.22***	-.04	.26
Heightened vigilance	.26***	-.02	.26
Coping with discrimination ¹	.07	.04	.05
Unfairly denied a job or promotion due to vegetarianism/ veganism	-.09	.13*	.54
Not hired for a job due to vegetarianism/veganism	-.19***	.00	.00

Note. Vegetarian $N = 133$; vegan $N = 233$; men $N = 87$; women $N = 284$. Given null variability, major discrimination regarding housing and bank loans was not included in these analyses.

¹Coping with discrimination analyses include only those participants for whom the variable was calculated (Vegetarian $N = 95$; vegan $N = 193$).

* $p < .05$. ** $p < .01$. *** $p < .001$.

73.4% of references to vegans in the UK news-media in 2007 were negative (Cole & Morgan, 2011), with many mainstream television advertisements derogating vegetarianism (“Taco Bell Nixes,” 2013; Taibi, 2013). However, we share Crandall and Warner’s (2005) position that highlighting a bias before its expression becomes socially unacceptable is critical. This allows for greater understanding of the overall psychology of bias, and can generate bias interventions. With attention toward vegetarianism and veganism growing steadily, strategies to promote harmonious relations among omnivores and vegetarians/vegans are imperative.

We demonstrate that vegetarians and vegans are targets of envious prejudice (envy, jealousy)

based on stereotype content (i.e., competent but unfriendly). This may represent the recognition that vegans/vegetarians are “right” to not exploit animals, but demonstrate restraint that many meat-eaters are personally unwilling to attempt. Overall, attitudes toward vegetarians and vegans are equivalent to, or more negative than, attitudes toward common prejudice target groups, and bias toward vegetarians and vegans is associated with these other biases. However, it appears that vegetarians and vegans are less likely to be targets of discrimination relative to these groups. Study 1 participants actually reported greater willingness to rent to vegetarians or vegans than all target groups examined, and greater willingness to hire vegetarians or vegans than both immigrants and

drug addicts. This suggests that, although omnivores relatively *disliked* vegetarians and vegans, they nonetheless recognize positive qualities in vegetarians/vegans when it comes to protecting investments such as companies or property. Perhaps on account of their “restrictive” diets vegetarians/vegans are stereotyped as disciplined and/or responsible, qualities that may be desirable in hiring or renting scenarios. Of course, this does not mean that vegetarians/vegans are immune to discrimination. Indeed, heightened right-wing ideology was associated with heightened intentions to discriminate against vegetarians/vegans, and some vegetarians/vegans themselves reported experiencing real discrimination in Study 3. Although our findings suggest that vegetarians and vegans face less severe and less frequent discrimination than that experienced by other minority groups, they nonetheless are targets of (and experience) meaningful bias.

Bias Toward Benign Yet Social Norm-Challenging Others

By following a vegetarian/vegan diet, vegetarians and vegans commit less harm to animals, the environment, and their own health. It is somewhat paradoxical that by objectively doing less harm, vegetarians and vegans become targets of bias. In doing less harm in these domains, however, vegetarians and vegans are perceived as doing harm in another: they undermine the integrity of prevailing social values and traditions that exploit animals. Vegetarian/vegan values may therefore be viewed as undermining the current way of life, rendering vegetarian/vegans targets of negativity. Environmentalists and feminists, other groups who do little objective harm but threaten the status quo, are likewise evaluated by omnivores (see also Bashir, Lockwood, Chasteen, Nadolny, & Noyes, 2013), presumably for similar reasons.

Intergroup threat is central to understanding bias toward vegetarians and vegans, especially for those higher in right-wing ideology, either fully or partially explaining associations between right-wing ideology and negative attitudes toward

vegetarians or vegans. Although intergroup threat is well-established as an explanation of right-wing bias toward a variety of outgroups (e.g., Blacks, women, AIDS patients; Riek et al., 2006), rarely has it been established as an explanation of right-wing bias toward a group where outgroup membership is chosen. Building on Dhont and Hodson (2014), where vegetarian threat predicted greater animal exploitation, the present evidence suggests that bias toward vegetarians and vegans is part of a larger picture: right-wing adherents support ideologies and practices that harm animals (i.e., meat consumption, animal exploitation), and do not support people who resist exploiting animals. In each case, vegetarianism/veganism threat serves as a legitimizing myth that “justifies” bias. With social norms espousing the use of animals for food, clothing, entertainment, and research, vegetarians and vegans are evaluated negatively for their resistance to norms, especially by those higher in right-wing ideologies. Indeed, vegetarian or vegans motivated by animal rights are evaluated *most* negatively (relative to environment or health motivations), and vegetarians/vegans motivated for environmental reasons are evaluated negatively relative to vegetarians/vegans motivated by personal health. These motivations directly challenge prevailing social norms. This newly established form of symbolic threat explaining attitudes toward vegetarians and vegans warrants further investigation. With the consumption of animals identified as a major contributor to climate change (McKnight, 2014), reducing vegetarianism/veganism threat may aid us in managing a major challenge of the 21st century.

Limitations and Future Directions

We examined bias toward vegetarians and vegans in a (largely) North American context where vegetarians and vegans are in the minority. Where vegetarians are more prevalent (e.g., 40% in India; “The Food Habits,” 2006) bias may be less strong (or be based in religion opposition). An interesting subgroup to examine in future research involves vegetarians and vegans who

are stigmatized along other dimensions. For example, India represents one of the top three source countries for immigrants in both Canada (Chui, 2014) and the US (Whatley & Batalova, 2013). As such, many immigrants in Canada and the US are likely to be vegetarian. These individuals may be viewed especially negatively due to their crossed-categorization as a double outgroup member (Crisp & Hewstone, 2006). Vegetarian status may be viewed as justification for overall bias toward such individuals, facilitating expression of bias that is not directly attributable to racial or ethnic factors (Dovidio & Gaertner, 1998). On the other hand, consistent with the black sheep effect, social norm-challenging (e.g., vegetarian) outgroup members may be evaluated more positively than social-norm challenging ingroup members, given that ingroup members are particularly expected to abide by social norms and maintain the group's positive identity (Pinto, Marques, Levine, & Abrams, 2010). For example, omnivores might be particularly negative toward other omnivores who experiment with veg(etari)anism. Future work can explore this potential.

We relied on self-report measures of discrimination, which may differ from actual discrimination given that vegetarians/vegans may be unaware of or underreport bias experiences. Future researchers might examine discrimination using more subtle measure or observation. Future work might also examine bias toward vegetarians/vegans in other contexts. Given the rising popularity of vegetarianism/veganism, attitudes toward vegetarians/vegans may shift from admiration in some contexts (e.g., a healthy living talk show) to animosity in others (e.g., a family holiday dinner). Further, although we have at times combined our assessments of vegetarians and vegans, vegetarians and vegans are distinct groups. Future researchers are encouraged to examine prejudices between vegetarians and vegans. Future researchers might also consider further examining bias toward those gluten-free eaters by choice, the nutritional group most negatively evaluated in Study 2.

Conclusion

Scholars in other fields have suggested the existence of "vegophobia" (Cole & Morgan, 2011), but we provide the first social psychological evidence of bias toward vegetarians and vegans, from both the source and the target. As interest in vegetarianism and veganism continue to grow, this form of bias is likely to become increasingly unacceptable to express. With this knowledge in hand, the field can now recognize and explore this bias (Crandall & Warner, 2005) to better understand not only the nature of prejudice more generally and to develop means to reduce bias.

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Notes

1. RWA loadings ranged from .51 to .90, SDO loadings .51–.93, conservatism loadings .84–1.00, old fashioned sexism loadings .43–.82, modern sexism loadings .59–.85, and ingroup identification loadings .77–.93. All models had good fit.
2. We wanted to determine whether the common perception that vegetarians/vegans believe that they are better than others was a component of vegetarianism/veganism threat. Indeed, a confirmatory factor analysis of all items in the vegetarianism/veganism threat scale (including our new item) revealed loadings ranging from .42 to .86 (the loading for our new item was .56) and good fit.
3. Vegetarian competence loadings .39–.87, vegan competence loadings .38–.89, vegetarian warmth loadings .72–.89, vegan warmth loadings .70–.94. All models had good fit.
4. Fear of discrimination loadings .39–.93, everyday discrimination loadings .56–.81, heightened vigilance loadings .57–.75, coping with discrimination loadings .80 to 1.00. All models demonstrated good fit.

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