



Eating and health behaviors in vegans compared to omnivores: Dispelling common myths[☆]



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ABSTRACT

Studies comparing eating behaviors in individuals avoiding meat and other animal products to omnivores have produced largely inconclusive findings, in part due to a failure to obtain sufficiently large samples of vegan participants to make meaningful comparisons. This study examined eating and health behaviors in a large community sample of dietary vegans (“vegans”), compared to omnivores. Participants ($n = 578$, 80.4% female) completed an online questionnaire assessing a range of eating- and other health-related attitudes and behaviors. Vegans (62.0%, $n = 358$) and omnivores (38.1%, $n = 220$) were comparable in terms of demographics. Vegans scored significantly lower than omnivores the Eating Disorder Examination - Questionnaire (multivariate $p < 0.001$), a measure of pathological eating behavior. They also were more likely to consider themselves “healthy” ($p < 0.001$) and to prepare food at home ($p < 0.001$). Vegans more frequently consumed fruits, vegetables, nuts, beans and grains (all $p < 0.001$), and less frequently consumed caffeinated soft drinks ($p < 0.001$). There were no significant differences between vegans and omnivores on measures of eating styles, body mass index, smoking or exercise behaviors, or problems related to alcohol consumption. Effect sizes for comparisons on eating-related measures were generally small, with η_p^2 ranging from <0.01 to 0.05; the size of effects for comparisons on measures of other health behaviors ranged from small to medium ($\Phi = 0.09$ to 0.33 and $\eta_p^2 < 0.01$ to 0.42). Taken together, findings suggest that ultimately, vegans do not differ much from omnivores in their eating attitudes and behaviors, and when they do, differences indicate slightly healthier attitudes and behaviors towards food. Similarly, vegans closely resembled omnivores in non-eating related health behaviors.

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1. Eating and health behaviors in vegans compared to omnivores: dispelling common myths

It has been posited that meat avoidance and eating disorders are linked, such that greater avoidance of animal products is associated with more disordered eating behaviors (Heiss, Hormes, & Timko, 2017; Klopp, Heiss, & Smith, 2003; Perry, McGuire, Neumark-Sztainer, & Story, 2001; Sullivan & Damani, 2000; Timko, Hormes, & Chubski, 2012; Trautmann, Rau, Wilson, & Walters, 2008). This

hypothesized association has typically been examined in cross-sectional studies of eating disorder populations. Findings from these studies generally suggest that compared to the general population, individuals who exhibit pathological eating behaviors are more likely to adhere to a vegetarian diet, though the adoption of meat-free diets may not cause, but instead serve to “camouflage” existing eating disorder symptomatology (Bardone-Cone et al., 2012; Hadigan et al., 2000; Kadambari, Gowers, & Crisp, 1986; O’Connor, Touyz, Dunn, & Beumont, 1987; Zuromski et al., 2015).

Results from research examining pathological eating behaviors among vegetarians are largely mixed. Some researchers have found that vegetarians score higher on measures of disordered eating (Bas, Karabudak, & Kiziltan, 2005; Klopp et al., 2003; Lindeman, Stark, & Latvala, 2000; Trautmann et al., 2008), while others report no significant group differences (Forestell, Spaeth, & Kane, 2012; Timko et al., 2012). Several studies have also examined dietary restraint in meat avoiders as an indicator of restrictive eating practices and a proxy for pathological eating behaviors (Lowe &

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Thomas, 2009). These studies have also produced mixed results, with some showing vegetarians having higher levels of restraint (Gilbody, Kirk, & Hill, 1998; Martins, Pliner, & O'Connor, 1999; McLean & Barr, 2003; Trautmann et al., 2008), some finding no group differences (Fisak, Peterson, Tantleff-Dunn, & Molnar, 2006), and others suggesting that vegetarians exhibit lower levels of restraint compared to omnivores (Barr, Janelle, & Prior, 1994; Janelle & Barr, 1995).

There are three factors that likely account for inconsistencies in this literature: first, a lack of uniformity in the operational definition of vegetarianism, second, differences in the way in which disordered eating is measured, and third, small sample sizes (Heiss et al., 2017). When operationally defining vegetarians, there are two broad trends in the literature. The first is to differentiate between subgroups of meat avoiders and compare them to omnivores. Findings from studies utilizing this approach suggest that these subgroups differ in meaningful ways, especially in regards to restraint and eating disorder symptoms. Specifically, semi-vegetarians, defined as those who refrain from some types of meat but consume others, seem to consistently be the most “pathological” when compared to omnivores (i.e., those who do not refrain from animal products) and other types of meat avoiders, including lacto-ovo vegetarians, who refrain from flesh but consume milk and eggs, and vegans, who abstain from all animal products (Forestell et al., 2012; Timko et al., 2012). The second method involves grouping together all subcategories of meat avoiders and comparing them to omnivores, often for the purpose of increasing statistical power. Studies that find vegetarians endorse more eating disorder symptoms typically employ this method (Bardone-Cone et al., 2012; Hadigan et al., 2000; Kadambari et al., 1986; O'Connor et al., 1987; Zuromski et al., 2015), but these between-group differences may be largely driven by elevated pathology specifically in the semi-vegetarians.

Researchers have used a range of measures to quantify pathological and other eating behaviors in meat avoiders. These include the Eating Disorder Examination-Questionnaire (Bardone-Cone et al., 2012; Timko et al., 2012; Zuromski et al., 2015), the Eating Attitudes Test and its shortened version (Bas et al., 2005; Fisak et al., 2006; Forestell et al., 2012; Klopp et al., 2003; Lindeman et al., 2000; Timko et al., 2012; Trautmann et al., 2008), the Dutch Eating Behavior Questionnaire (Fisak et al., 2006; Gilbody et al., 1998; McLean & Barr, 2003; Timko et al., 2012; Trautmann et al., 2008), the Three-Factor Eating Questionnaire (Barr et al., 1994; Curtis & Comer, 2006; Fisak et al., 2006; Forestell et al., 2012; Janelle & Barr, 1995; Kahleova, Hrachovinova, Hill, & Pelikanova, 2013; Martins et al., 1999; McLean & Barr, 2003; Moore, McGrievy, & Turner-McGrievy, 2015), and a variety of unstandardized questions (Estima, Philippi, Leal, Pimentel, & Alvarenga, 2012; Robinson-O'Brien, Perry, Wall, Story, & Neumark-Sztainer, 2009). Of note, even studies using the same measures to capture symptoms of disordered eating behavior have at times reported conflicting findings (e.g., Bas et al., 2005; Timko et al., 2012), suggesting that more research is needed to resolve some of the current debate about possible links between meat avoidance and disordered eating.

Inclusion of vegan participants in research in this field tends to be the exception rather than the rule, even in studies that differentiate between other subgroups of meat avoiders. Within research focused on assessing the relationship between pathological eating and meat avoidance, researchers have obtained, for example: 35 vegans (Timko et al., 2012), zero vegans (Trautmann et al., 2008), 14 vegans that were grouped in with lacto- and lacto-ovo vegetarian (Forestell et al., 2012), and 20 vegans that were combined with all other meat avoiders (Fisak et al., 2006). This lack of representation of vegans in studies of meat avoiders has resulted in a scarcity of

knowledge about the prevalence and nature of eating-related pathology specifically in this group. While the perception seems to be that greater avoidance of animal products is related to more elevated eating pathology, the lack of sufficiently large samples of vegan participants in past studies has made it difficult to support this claim with empirical evidence.

Gaining a better understanding of eating behaviors in vegans is of particular importance for two reasons. First, veganism has become more mainstream in the past 15 years, with a larger proportion of the American population adhering to the diet than ever before (Radnitz, Beezhold, & DiMatteo, 2015). Second, a vegan diet has been increasingly implicated in beneficial health outcomes, such as lowered risk of cardiovascular disease, cancer, obesity, and type II diabetes (Campbell, Parpia, & Chen, 1998; Le & Sabaté, 2014; Mishra et al., 2013). The relative dearth of information focused specifically on eating attitudes and behaviors of vegans is thus remarkable and a driving force behind the present investigation.

In addition to possible differences in levels of eating pathology, relatively little is known about potential discrepancies in other health behaviors between vegans and omnivores. A 2013 study recruited 100 vegan participants to assess the impact of “religious,” “animal welfare,” and “health” motivations for the diet on a range of health behaviors and outcomes, but did not include a group of omnivores (Dyett, Sabaté, Haddad, Rajaram, & Shavlik, 2013). Included in this study were questions regarding age, gender, exercise, alcohol, smoking, body mass index (BMI), and food consumption frequency. Overall, few differences were found between the different subgroups of vegans. Participants in this study on average reported BMI in the “normal” range, were likely to cook meals at home, and were unlikely to smoke or drink to excess. Unfortunately, meaningful comparisons between vegans and the general population cannot be drawn without a comparison group.

A recent study examined differences in stress and anxiety between vegans and omnivores, along with potential differences in a number of health behaviors (Beezhold, Radnitz, Rinne, & DiMatteo, 2015). No differences were found between vegans and omnivores on BMI, dieting frequency, and tobacco use. Vegans reported less frequent alcohol consumption, more frequent moderate exercise, and greater daily consumption of fruits and vegetables, with effect sizes ranging from $r = -0.22$ to 0.20 (Beezhold et al., 2015).

Given the gaps and limitations in the current research, the purpose of this study was to compare dietary vegans (“vegans,” i.e., individuals who refrain from consuming all animal products, including milk, meat, and eggs) to omnivores (i.e., individuals who do not restrict consumption of animal products) in terms of eating attitudes and behaviors, disordered eating behaviors, and non-eating health behaviors/outcomes. We sought to address weaknesses in prior studies by recruiting one of the largest community-based samples of vegan respondents described in the literature to date, comparing them to a demographically comparable group of omnivores, and administering a wide range of measures of eating- and health-behaviors to facilitate comparisons with prior research. This study is not hypothesis-driven, but rather aims to describe a chronically understudied subgroup of the general population.

2. Methods

All methods were reviewed and approved by the local Institutional Review Board. Participants were informed of the nature and purpose of the research and consented prior to completion of questionnaires.

2.1. Participants

Inclusion criteria for this study were fluency in English and

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