



Vegetarianism, dietary restraint and feminist identity[☆]

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Abstract

Objective: Research examining the relationship between dietary restraint and vegetarianism has yielded inconsistent results due to differing definitions of vegetarianism and the possible modifying role of feminist identity. The current study sought to further clarify these relationships by examining three levels of vegetarianism, motivation for vegetarianism, and feminist identity (using an updated measure).

Method: Participants were 90 female undergraduate students and community members (mean age=24.34 years). Dietary restraint was measured using the TFEQ; feminism was assessed using the LFAIS.

Results: Weight-motivated semi-vegetarians reported higher levels of dietary restraint than those not motivated by weight. This effect did not appear among full-vegetarians. Lowest levels of dietary restraint were found among full-vegetarians with no difference between non- and semi-vegetarians. Contrary to previous research, feminist identity did not moderate the relationship between dietary restraint and vegetarianism.

Discussion: Limitations resulting from a scale with a narrow definition of feminism and the use of multiple sources of recruitment are discussed. Directions for future research are highlighted.

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1. Vegetarianism, dietary restraint and feminist identity

In recent years, an increase in the prevalence of dieting behaviors and disordered eating has been the impetus behind a large body of psychological research. Among the constructs of interest is dietary restraint, a conscious monitoring of food intake for weight control purposes. Research focused on the predictors and consequences of dietary restraint has identified vegetarianism as one correlate, but the exact relationship between these two behaviors remains unclear (Barr, Janelle, and Prior, 1994; Gilbody, Kirk, & Hill, 1999; Martins, Pliner, & O'Connor, 1999; Worsley & Skrzypiec, 1997). The current study aims to further define the relationship between vegetarianism and dietary restraint by examining potentially moderating constructs.

1.1. Vegetarianism and dietary restraint

Vegetarianism has been positively associated with both dietary restraint (Barr et al., 1994; Gilbody et al., 1999; Martins et al., 1999; Worsley & Skrzypiec, 1997) and extreme dieting behaviors (e.g., purging), especially among adolescents (Perry, McGuire, Neumark-Sztainer, & Story, 2001). A link also exists between vegetarianism and eating disorder symptomatology, including disordered attitudes about eating and interpersonal distrust (Lindeman, Stark, & Latvala, 2000). The adoption of a vegetarian diet for some people may be a means of either legitimizing or facilitating dieting behaviors (Gilbody et al., 1999; Martins et al., 1999; Perry et al., 2001), although results of the few studies that examine this relationship are inconsistent. It is likely that the nature of this relationship varies according to the definition of vegetarianism and other relevant sample characteristics.

Studies that combine semi-vegetarians (those who do not eat red meat but may consume chicken and/or fish) and full vegetarians (those who do not consume any animal flesh) under the unified category of “vegetarian” find a positive correlation between vegetarianism and dietary restraint (Gilbody et al., 1999; Martins et al., 1999; Worsley & Skrzypiec, 1997). Gilbody et al. (1999) examined vegetarianism in college females with the expectation that vegetarianism was used as a means of weight control among that population. Higher levels of dietary restraint were found among the females who self-identified as vegetarian than among those who were non-vegetarians. Worsley and Skrzypiec (1997) studied dieting habits and vegetarianism among adolescents and also found higher dietary restraint levels among self-reported vegetarian females. In addition, vegetarians in that study reported higher rates of extreme dieting behaviors. Lastly, Martins et al. (1999) found a positive correlation between dietary restraint and self-reported vegetarianism among adolescent and adult males, as well as among adolescent and adult females who were also feminists. Thus, vegetarianism, when broadly defined, appears to be positively associated with dietary restraint.

In contrast to studies utilizing a broad definition of vegetarianism, Barr et al. (1994) defined vegetarianism as the *complete* avoidance of meat and found *lower* levels of dietary restraint in these strict vegetarians relative to non-vegetarians. This study did not include a semi-vegetarian category. This finding, which is seemingly inconsistent with other literature in this area, may be a function of the definition of vegetarianism used in this study. Strict vegetarianism (complete avoidance of meat, chicken, and fish) requires a much more substantial life commitment than semi-vegetarianism. Strict vegetarians are also more likely to identify political and/or ethical reasons as motivations behind their vegetarian lifestyle, whereas semi-vegetarians may be more likely to include weight loss as a motivating factor for their food choices (Perry et al., 2001). Given the differing levels of

commitment and types of motivation found among different groups of vegetarians, the previously identified relationship between vegetarianism and dietary restraint may be limited to semi-vegetarians only.

Unfortunately, it is difficult to speculate further on the relationship between levels of vegetarianism and dietary restraint as there do not appear to be studies that analyze full and semi-vegetarians separately. Despite these limitations, research in this area suggests that less restrictive levels of vegetarianism may serve as a cover for other dieting behaviors whereas strict vegetarianism may involve a more stable lifestyle choice that transcends dieting and weight concerns.

1.2. Feminism, vegetarianism, and dietary restraint

In addition to level of vegetarianism and motivation behind the vegetarianism serving as possible modifiers of the dietary restraint—vegetarianism relationship, [Martins et al. \(1999\)](#) also identified a link between a vegetarianism, dietary restraint, and feminist identity among adult females. This study examined whether the adoption of a vegetarian diet may serve as a covert means of dieting for weight loss, and specifically explored the possible role of feminism as a moderator of the dietary restraint—vegetarianism relationship. It was hypothesized that among women, as feminism scores increased, dietary restraint would be more strongly associated with vegetarianism, and their findings supported this hypothesis. [Martins et al. \(1999\)](#) explain this relationship by asserting that overt dieting among female feminists would normally be considered a social taboo. It is assumed that these feminists recognize that they are using vegetarianism as a covert dieting strategy but that they are trying to hide their dieting behaviors from others as “*social impression management*” (p.146).

This interpretation is supported by some modern feminist theorists. According to [Wolf \(1994\)](#), among women in this society, dieting for weight loss is a reaction to the thin ideal prescribed by society and the media. This thin ideal is a sociopolitical control mechanism that is itself a reaction to the feminist movement and women’s corresponding increase in power ([Wolf, 1994](#)). As such, trying to achieve this thin ideal would go against the tenets of the feminist movement. However, [Rothblum \(1994\)](#) argues that “to be female in the United States is to be acutely aware of one’s appearance” (p. 54) and thus female feminists would not be immune to pressures to be thin. In order not to appear to subscribe to social norms (and thereby undermine the feminist movement), female feminists who give in to these social pressures must find covert ways of trying to achieve the stipulated body type. One of these means may involve becoming a vegetarian to disguise the process of weight control.

Unlike other studies assessing dietary restraint in semi- and/or full vegetarians, [Martins et al. \(1999\)](#) found no relationship between vegetarianism and level of dietary restraint when analyzing the entire female sample. It is possible that this discrepancy is due in part to the broad age range of the participants (14 to 45 years); twenty percent of the sample was adolescent, defined as 19 years of age or younger. Adolescent vegetarians may differ from adult vegetarians, particularly as vegetarianism relates to dieting and health related behaviors ([Neumark-Sztainer, Story, Resnick, & Blum, 1997](#); [Perry et al., 2001](#); [Worsley & Skrzypiec, 1997](#)). For example, [Perry et al. \(2001\)](#) found that adolescents cite weight loss as their primary reason for vegetarianism, yet adult vegetarians do *not* readily identify weight concerns as the primary motivating factor for their vegetarianism ([Gilbody et al., 1999](#)). [Perry et al. \(2001\)](#) also attribute more healthy behaviors to adult vegetarians than to adolescent vegetarians, and [Worsley and Skrzypiec \(1997\)](#) believe that adolescents are more likely to specifically use vegetarianism as a socially acceptable mask for weight loss attempts. In addition to

possible differences between adolescents and adults, the discrepant findings may also be due to [Martins et al. \(1999\)](#) including both feminists and non-feminists in their sample. As most studies examining dietary restraint and vegetarianism have not included a measurement of feminism, it is possible that previous samples have been predominantly feminist and that feminism has driven the dietary restraint—vegetarianism relationship.

Certain aspects of the [Martins et al. \(1999\)](#) study could be modified to provide a clearer picture of the relationships in question. For example, semi-vegetarians and full-vegetarians were combined for analyses; as previously stated, the relationship between dietary restraint and vegetarianism likely varies according to level of vegetarianism. Additionally, at the time of their study's publication, the Attitudes Toward Feminism Scale (ATFS, also known as the FEM scale) was already 15 years old and may not have reflected modern feminist attitudes. [Martins et al. \(1999\)](#) acknowledged the age of the scale as a potential problem but also argued that the basic tenets of feminism probably have not changed. However, recent analyses of feminism scales ([Morgan, 1996](#)) propose that this scale (and others like it) measures only sex-role attitudes and not feminism in its totality. Thus, the results are perhaps best articulated such that vegetarianism and dietary restraint are positively associated among women who oppose traditional sex roles, but not necessarily among feminists. Additionally, [Martins et al. \(1999\)](#) used the short form of the ATFS, which only includes 10 items. According to [Morgan \(1996\)](#), feminism is best assessed with longer, broad-scale questionnaires both because there are many issues that comprise feminist ideology (e.g., reproductive rights and equal pay) and because “a respondent's opinions on specific issues do not necessarily reflect their underlying ideology or perceptions of appropriate gender roles” (p. 362). Thus, a larger scale that measures the broader aspects of feminism may be necessary to truly elucidate this relationship.

1.3. Goals of the current study

The current study seeks to replicate the findings of [Martins et al. \(1999\)](#) while addressing some of the limitations identified above. Participants completed questionnaires that assessed dietary restraint, level of vegetarianism, motivation for food choices, and level of feminism. Based on current theories and the findings of previous research, this study tested three hypotheses. First, level of dietary restraint among semi- and full-vegetarians will vary according to motivation for food choices, such that the highest levels of dietary restraint will be reported by those who cite weight among their top three motivations for vegetarianism. Conversely, participants who emphasize the importance of ethical/political concerns or health reasons behind their vegetarianism will report lower levels of dietary restraint.

Second, it was hypothesized that level of dietary restraint will vary with level of vegetarianism such that semi-vegetarians will exhibit the highest dietary restraint levels, followed by non-vegetarians, and full vegetarians, respectively (see [Table 1](#) for description of levels of vegetarianism). Each subsequently higher level of vegetarianism requires greater commitment and discipline; it is believed that vegetarians who are motivated solely or primarily by weight concerns would be less likely to assume the burden of the more strict levels of vegetarianism.

Third, feminism and/or the interaction between dietary restraint and feminism may be related to vegetarianism, such that the relationship between vegetarianism and dietary restraint will be greater as the level of feminist identity increases. This relationship is predicted in accordance with the findings of [Martins et al. \(1999\)](#), and it is expected to be replicable with a broader, more modern feminism scale.

2. Methods

2.1. Participants

Participants consisted of both students and faculty from the University of Northern Colorado (UNCO), as well as community members from Boulder, CO. A total of 90 females completed the survey (UNCO Participants=64). The ethnic breakdown was 92.2% ($n=83$) Caucasian, 2.2% ($n=2$) Hispanic/Latina, 2.2% Asian ($n=2$), 1.1% Native American ($n=1$), 1.1% ($n=1$) identified as ‘Other’, and 1.1% ($n=1$) undisclosed. Participant ages ranged from 18 – 57 ($M=24.34$, $S.D.=7.86$); participants from UNCO were significantly younger ($Mean=21.92$, $S.D.=4.05$) than those from Boulder ($Mean=30.31$, $S.D.=11.26$), $t(88)=-5.22$, $p<.01$. Of the 90 women, there were 54 non-vegetarians (50 from UNCO), 14 semi-vegetarians (8 from UNCO), 2 pesco-vegetarians (1 from UNCO), 13 lacto-ovo vegetarians (5 from UNCO), 2 ovo vegetarians (0 from UNCO), and 5 vegans (0 from UNCO). Vegetarians were more heavily represented among participants recruited from Boulder; of the 36 vegetarians, 22 (61%) were recruited from Boulder.

2.2. Measures

All measures were self-report questionnaires completed by the participants. The self-report questionnaires assessed dietary restraint, vegetarianism, motivation for food choice, and feminist identity.

2.2.1. Dietary restraint

Dietary restraint was assessed using the dietary restraint subscale of the Three Factor Eating Questionnaire (TFEQ-R; [Stunkard & Messick, 1985](#)). The TFEQ-R was used in order to compare results of the current study to those obtained by [Martins et al. \(1999\)](#). The TFEQ-R includes 21 questions (e.g., I consciously hold back at meals in order not to gain weight), 12 of which are true/false and 9 of which are Likert scale questions (4 point scale with differing anchors). The TFEQ-R has shown sufficient reliability and validity ([Allison, Kallinsky, & Gorman, 1992](#); [Stunkard & Messick, 1985](#)).

Table 1
Levels of vegetarianism

Category	Description	Mean age (S.D.)
Non-vegetarian	Eats all foods	23.43 (7.41)
Semi-vegetarian	Does not eat red meat but occasionally eats chicken and/or fish	27.00 (11.47)
Pesco-vegetarian	Does not eat red meat or chicken but occasionally eats fish	26.00 (7.07)
Lacto-ovo-vegetarian	Does not eat red meat, chicken, or fish but eats dairy products and eggs	25.00 (7.16)
Ovo-vegetarian	Does not eat red meat, chicken, fish or dairy products but eats eggs	22.00 (1.41)
Vegan	Does not eat any animal flesh or any other animal byproducts	25.00 (3.32)
Levels of vegetarianism used for analyses	Description	Mean age (S.D.)
Non-vegetarian	Eats all foods	23.43 (7.41)
Semi-vegetarian	Does not eat red meat but occasionally eats chicken and/or fish	26.87 (10.84)
Full vegetarian	Does not eat any animal flesh, may or may not consume other animal byproducts (e.g. eggs, dairy, honey)	24.80 (5.98)

2.2.2. Vegetarianism

All participants were asked to circle either *yes* or *no* in response to the question “Are you a vegetarian?” After answering that question, and regardless of the answer, participants were asked to select the food choice category that most closely resembled their eating habits. The vegetarian categories listed were defined according to the *Berkeley Wellness Letter* (University of California, 1993) and were the same categories used by Martins et al. (1999). The food choice categories were non-vegetarian, semi-vegetarian, pescovegetarian, lacto-ovo-vegetarian, ovo-vegetarian, full vegetarian, and vegan. The descriptions (e.g., Does not eat red meat or chicken but occasionally eat fish) but not the titles (e.g., pescovegetarian) were listed in the participant questionnaire.

2.2.3. Motivation for food choice

Motivation for food choice was assessed by allowing participants to rank the order in which ethical/political motives (including animal rights and environmental protection), religious motives, health concerns, weight control, taste, and other reasons (with instructions to specify) motivate their food choices. Participants were also given the option to identify a category as ‘not applicable’.

2.2.4. Feminism

Feminist identity was assessed using the Liberal Feminist Attitude and Ideology Scale (LFAIS; Morgan, 1996). The LFAIS is a 60-item questionnaire rated on a 6-point Likert-type scale (1 = *strongly disagree*, 6 = *strongly agree*). The questions in the scale are divided into two subscales, Gender Roles (e.g., both husband and wife should be equally responsible for the care of young children) and Goals of Feminism (e.g., equality between the sexes is a worthwhile goal). The scale has shown sufficient reliability and validity in an institutional setting (Morgan, 1996).

2.3. Procedure

All procedures and treatment of participants were in accordance with the APA ethical guidelines (2003). Participants were originally recruited from undergraduate Psychology and Women’s Studies courses at the University of Northern Colorado, where students were offered extra credit for their participation (an alternate extra credit opportunity was offered to those who preferred not to participate in the study). Second, notices were sent via various campus listservs and posted on bulletin boards around campus requesting vegetarians in particular. Finally, a table was placed at the Boulder Co-op Market (a vegetarian cooperative grocery store in Boulder, CO) to recruit participants. Recruitment was passive (i.e., the researchers waited for potential participants to approach them, not vice-versa).

Depending on the avenue of recruitment, participants either completed the questionnaires in person or via e-mail (sending the questionnaire as an attachment).

3. Results

Analyses were conducted using averaged scores for the dietary restraint and feminism scales. All scores were standardized prior to analysis. In the instance of missing data within a scale, within-participant averages were calculated and inserted for the missing values. Given the level of difficulty involved in locating and recruiting vegetarian participants, this methodology was considered preferable to dropping participants who failed to complete all items.

Because there were only five vegans (those who abstain from all animal products) in the sample, vegans were combined with lacto-ovo and ovo vegetarians (those who abstain from all meat products but consume dairy and/or eggs) for all analyses under the category “full vegetarian”. The vegans did not significantly differ from the lacto-ovo and ovo-vegetarians in their level of feminism or in their level of dietary restraint. In addition, the primary motivations for vegetarianism across the three groups were largely similar; all three groups endorsed Ethical/Political Concerns and Health Concerns as two of their top three sources of motivation.

Pesco-vegetarians (those who eat fish but no red meat or chicken) and semi-vegetarians (those who eat chicken and fish but no red meat) were combined under the category “semi-vegetarian.” The final three categories, non-vegetarian, semi-vegetarian, and full vegetarian, respectively, comprise the progressive levels of vegetarianism used in analyses. A breakdown and description of both the original six categories and those three used for analyses can be found in Table 1.

Correlations between the variables of interest (dietary restraint, feminism, and level of vegetarianism) are presented in Table 2. Feminism and vegetarianism were positively correlated ($r = .32, p < .01$). None of the other correlations reached significance. Comparisons in terms of dietary restraint and feminist identity were also conducted between participants recruited from UNCO versus Boulder. Participants recruited from Boulder reported significantly lower levels of dietary restraint ($Mean = -0.33, S.D. = 0.71$) than did participants from UNCO ($Mean = 0.13, S.D. = 1.07$), $t(88) = 2.04, p < .05$. They also endorsed significantly higher levels of feminist identity ($Mean = 0.65, S.D. = 0.76$) than did the UNCO participants ($Mean = -0.26, S.D. = 0.97$), $t(88) = -4.30, p < .01$. Because of the relatively small number of vegetarians within the entire sample ($N = 36$), vegetarians recruited from both UNCO and Boulder were combined for all subsequent analyses.

Hypothesis 1 (*Dietary restraint and motivation for vegetarianism*). Sources of motivation identified as one of the three most important reasons for vegetarianism are listed separately in Table 3 for semi- and full vegetarians. Full vegetarians were significantly more likely to endorse Ethical/Political reasons [$\chi^2(1) = 6.76, p < .01$] as one of the primary sources of motivation for vegetarianism. There was also a non-significant trend for semi-vegetarians to endorse Weight Concerns as a primary motivator more frequently than full-vegetarians [$\chi^2(1) = 3.65, p = .056$].

It was hypothesized that vegetarians who cited weight as a motivating factor for their vegetarianism would report higher levels of dietary restraint. Semi-vegetarians and full vegetarians who cited weight as one of the top three reasons for food choice (i.e., weight motivated) were compared to members of their respective groups who did *not* cite weight as one of their top three motivations (i.e., non-weight motivated). Mean dietary restraint scores for weight motivated and non-weight motivated semi- and full vegetarians are

Table 2
Intercorrelations between dietary restraint, feminism, and level of vegetarianism

Variable	Dietary restraint (TFEQ-R)	Feminism (LFAIS)	Level of vegetarianism
Dietary restraint (TFEQ-R)	1.00	-.09	-.20
Feminism (LFAIS)		1.00	.32*
Level of vegetarianism			1.00

* $p < .01$.

Table 3

Percent of semi- and full vegetarians who report each motivation as one of the three most important reasons for vegetarianism

Motivation	Semi-vegetarians (<i>n</i> = 16)	Full vegetarians (<i>n</i> = 20)
Ethical/political reasons*	38 (6)	80 (16)
Health concerns	88 (14)	95 (19)
Religious reasons	0 (0)	10 (2)
Weight concerns	56 (9)	25 (5)
Taste preferences	63 (10)	60 (12)

Numbers in parentheses reflect the corresponding *n*.* $p < .01$.

presented in Table 4. Among semi-vegetarians, those who were weight motivated reported more dietary restraint than those who were non-weight motivated, $t(14) = 4.50$, $p < .01$. Among full vegetarians, however, there were no differences in dietary restraint between those who were weight motivated and those who were not, $t(18) = .81$, $p > .05$. Levels of dietary restraint were also compared between weight-motivated semi-vegetarians versus weight-motivated full vegetarians. The difference was significant, $t(12) = 2.60$, $p < .05$, such that weight-motivated semi-vegetarians reported higher levels of dietary restraint ($Mean = 1.23$, $S.D. = 1.06$) than did weight-motivated full vegetarians ($Mean = -.30$, $S.D. = 1.05$).

In further examination of hypothesis one, identical analyses were conducted comparing dietary restraint levels among participants who were motivated by Ethical/Political Concerns versus those who were not, and those who were motivated by Health Concerns versus those who were not. Contrary to expectation, participants motivated by Ethical/Political or Health Concerns did not endorse lower levels of dietary restraint than those participants not motivated by these concerns. The failure to detect differences may be a result of the high percentages of full vegetarians who cited by Ethical/Political Concerns and Health Concerns in their top three motivations (80% and 95%, respectively), as well as the high percentage of semi-vegetarians who cited Health Concerns as one of their top three motivations (88%; see Table 3).

Hypothesis 2 (*Dietary restraint by level of vegetarianism*). It was hypothesized that semi-vegetarians would exhibit the highest levels of dietary restraint, followed by non-vegetarians and full vegetarians,

Table 4

Dietary restraint levels among weight motivated versus non-weight motivated vegetarians

	Level of dietary restraint		
	<i>n</i>	Mean	S.D.
Semi-vegetarians*			
Weight-motivated	7	1.23	1.06
Non-weight motivated	9	-.69	.43
Full vegetarians			
Weight-motivated	5	-.58	.50
Non-weight motivated	15	-.30	1.05

Descriptive data is based upon standardized scores.

* Difference between weight-motivated versus non-weight motivated semi-vegetarians was significant, $p < .01$.

respectively. A one-way ANOVA revealed a main effect of dietary restraint on levels of vegetarianism, $F(2, 87)=4.21, p<.05$. Planned comparisons were conducted comparing dietary restraint scores for the three levels of vegetarianism. Mean dietary restraint scores for each level of vegetarianism are presented in Table 5. Semi-vegetarians reported higher levels of dietary restraint than full-vegetarians, $t(87)=2.77, p<.01$, as did non-vegetarians, $t(87)=2.28, p<.05$. Differences between semi-vegetarians and non-vegetarians did not reach significance, $t(87)=-1.17, p>.05$.

Hypothesis 3 (*The role of feminism in the dietary restraint—vegetarianism relationship*). Lastly, it was hypothesized that feminism would moderate the relationship between dietary restraint and vegetarianism, such that the dietary restraint—vegetarianism relationship would be stronger as levels of feminism increased. A hierarchical linear multiple regression analysis was performed to evaluate the potential relationships between vegetarianism, dietary restraint and feminism. The hierarchical multiple regression equation was created using vegetarian status as a dependant variable and dietary restraint, feminism, and the interaction between dietary restraint and feminism as independent variables. A summary of the regression analysis is presented in Table 6. There was a main effect of feminism such that higher feminism was associated with higher levels of vegetarianism, $p<.01$. There was no main effect of dietary restraint, and contrary to hypothesis, there was no feminism by dietary restraint interaction on level of vegetarianism.

To explore the possibility that the original finding of Martins et al. (1999) was specific to rejection of traditional gender roles, a separate regression was conducted using the Gender Role subscale of the LFAIS. Again, there was a main effect of Gender Role such that higher Gender Role scores (greater rejection of traditional gender roles) were associated with higher levels of vegetarianism, $p<.05$. Again, there was no main effect of dietary restraint, and the Gender Role by dietary restraint interaction term did not reach significance.

4. Discussion

4.1. Motivation for vegetarianism

The first hypothesis stating that vegetarians who cite weight as a motivating factor for vegetarianism would also endorse higher dietary restraint was supported only among semi-vegetarians. Semi-vegetarians who cited weight as one of the top three reasons behind their eating style reported significantly higher levels of dietary restraint than did non-weight motivated semi-vegetarians and both weight-motivated and

Table 5
Mean dietary restraint scores (TFEQ) by level of vegetarianism

	Dietary restraint		
	<i>n</i>	Mean	S.D.
Non-vegetarians ^a	54	.07	.95
Semi-vegetarians ^b	16	.39	1.28
Full vegetarians ^{a,b}	20	-.51	.66

Descriptive data is based upon standardized scores.

^a Difference between non- and full vegetarians was significant, $p<.01$.

^b Difference between semi- and full vegetarians was significant, $p<.01$.

Table 6

Hierarchical linear multiple regression analysis of dietary restraint and feminism on level of vegetarianism

Variable	Un. β	Std. Error	St. β	t	R ²	Adj.R ²
	b	Se b				
Dietary restraint	-.14	.08	-.16	-1.61	.13	.10
Feminism	.26	.09	.31	3.01*		
Dietary restraint x Feminism	-.03	.09	-.04	-.34		

* $p < .01$.

non-weight-motivated full vegetarians. Therefore, semi-vegetarians' self-disclosed motivation is consistent with their dietary restraint scores. It is possible that the hypothesized difference might have emerged among full vegetarians if the role of weight motivation were assessed more stringently (i.e., comparing those who cite it as the primary motivation or one of the top two motivators), but the sample sizes in the current study were not large enough to conduct such analyses. Among the full vegetarians, only one participant rated weight concerns as one of her top two sources of motivation. Thus, although a number of full vegetarians cited weight concerns as one source of motivation, weight was rarely the primary motivation. Given the level of restrictiveness already required in a full vegetarian diet, perhaps these full vegetarians who have weight concerns do not find it necessary to engage in any further dietary restraint. Studies investigating the importance of motivations may need to further distinguish between primary versus secondary motivations for vegetarianism.

Previous studies show that among combined vegetarian groups, weight is not the primary concern (Gilbody et al., 1999) when compared to other potential motivating factors (e.g., ethical or religious motivations). In the current study, the most frequently cited *primary* motivation among both semi-vegetarians and full vegetarians was health, which is consistent with the findings of Gilbody et al. (1999). Ethical/political reasons and taste were also commonly endorsed motivations among both groups. Taste and health have previously been identified as important food choice motives (Mooney & Walbourn, 2001). Thus, the motivations for vegetarianism within this sample are consistent with those identified in other vegetarian samples.

4.2. Dietary restraint and level of vegetarianism

The second hypothesis, that semi-vegetarians would report the highest levels of dietary restraint followed by non-vegetarians and full vegetarians, respectively, was partially supported. The mean scores followed the predicted curvilinear pattern; however, only the differences between full vegetarians versus the other two groups were significant. These results help explain some of the disparities in previous research regarding whether vegetarians endorse higher or lower levels of dietary restraint relative to non-vegetarians. Studies that found higher dietary restraint levels among vegetarians than among non-vegetarians (Gilbody et al., 1999; Worsley & Skrzypiec, 1997) were generally those which combined semi-vegetarians with full vegetarians for analyses; however, the combined vegetarian samples in these studies were predominantly comprised of semi-vegetarians. Thus, results of these previous studies likely reflect the behaviors of semi-vegetarians and may not be representative of full vegetarians.

Based upon findings from the current study and previous research, it appears that semi- and full vegetarians are fundamentally different and therefore should be examined separately in terms of dietary

restraint and related phenomena. Previous research (Perry et al., 2001) has suggested that semi-vegetarian adolescents are a population quite different from full vegetarian adolescents, especially when considering weight loss-related behaviors. The current study identifies this difference among adult vegetarians as well.

4.3. *Vegetarianism, feminism, and dietary restraint*

The final hypothesis, that feminism would moderate the relationship between dietary restraint and vegetarianism, was not supported. While there was a main effect of feminism on level of vegetarianism (with higher levels of feminism associated with higher levels of vegetarianism), there was no main effect of dietary restraint, nor was the interaction between dietary restraint and feminism significant.

These findings are contrary to Martins et al. (1999), who found a significant moderating effect of feminism in the relationship between dietary restraint and vegetarianism. The inability to replicate the results from Martins et al. (1999) might be due to the difference in feminism scales. The Liberal Feminist Attitudes and Ideologies Scale (LFAIS) that was used in the current study is a broader, updated measure that was developed to replace previous scales that more closely measure sex-role attitudes than feminism per se (Morgan, 1996). The ATFS (used in Martins et al.) measures prejudice against women or attitudes toward traditional sex-roles, and is not generally used to identify feminists, agreement with general feminist ideology, or participation in the feminist movement (Morgan, 1996; Singleton and Christiansen, 1977). Morgan (1996) argues that rejecting traditional sex-roles is part of feminism but is not itself a valid way of identifying a feminist and therefore includes multiple subscales in addition to the one assessing gender role acceptance.

When analyzing just the Gender Role Subscale of the LFAIS in the current study, the interaction term between Gender Role and dietary restraint failed to reach significance, thereby calling into question the assertion that the findings of Martins et al. (1999) are specific to rejection of sex-role norms. The Gender-Role subscale of the LFAIS and the 10-item version of the ATFS have one question in common (“As head of the household, the father should have final authority over his children.”) and a few questions that target similar issues (e.g., name change after marriage and children) but are otherwise distinct. These differences could mean that the ATFS is tapping is an attitude toward antiquated sex-role expectations whereas the Gender-Role subscale of the LFAIS taps attitudes toward more modern sex-role expectations. Unfortunately, the current study did not include the questions from the ATFS, so it is unclear how strongly related these scales would have been in this population.

In both the current study and Martins et al. (1999), there is a possibility of a ceiling effect for feminism scores making it more difficult to examine the role of feminism interacting with levels of vegetarianism and dietary restraint. In the current study, the sample average was 4.88 out of a possible 6; Martins et al. (1999) found a mean of 44.8 out of 50. Use of a more sensitive measure of feminism (i.e., one that assesses a broader spectrum of feminist ideals such as environmental feminism and radical feminism) might have produced a larger range of scores and thereby made it easier to disentangle the effects of feminist identity on vegetarianism and dietary restraint. A broader measure, the Feminist Perspectives Scale (Henley, Meng, O’Brien, McCarthy, & Sockloskie, 1998), was considered for the current study. However, recruitment was initially intended to occur solely on the UNCO campus and there was concern that other, less mainstream feminist ideals would find little endorsement on a campus in a relatively conservative town. We believe that this university sample is representative of current mainstream feminist ideals, a belief that is supported by the participants’ relatively moderate ratings on the feminism scale; however, we thought it unlikely that our sample

would endorse more radical or extremist feminist views and thus chose a scale that appeared to be a better match for our sample.

A broader measure of feminism administered in a sample with a broader range of feminist beliefs may have also clarified the complex relationship between feminism and vegetarianism because not all subgroups of feminism have the same ideological stance on vegetarianism (Adams, 1991; Donovan, 1990; George, 2000). Vegetarianism has been a part of the feminist movement since at least the late 1800s (Donovan, 1990). However, analysis of current feminist theory regarding vegetarianism reveals a divergence even within prominent feminist theorists (Adams, 1995; George, 1994). On the one hand is the argument that women and animals have been equally oppressed under patriarchy and therefore women should not eat animals (Adams, 1990, 1991, 1995). Conversely, there is the argument that a vegetarian diet is itself philosophically and financially oppressive to groups that are already oppressed (e.g., women and children) and is therefore unfair to those groups (George, 1994). This is supported with the assertion that research arguing the health benefits of a vegetarian diet, like most other medical research, is based on the male physiological norm. George (2000) argues that universal ethical vegetarianism would put women and children at a disadvantage; therefore, according to her theory semi-vegetarianism (with limited, individually determined consumption of meat) is more consistent with feminist ideology.

If the theory of Martins et al. (1999) is valid, then there may be some other moderating variable influencing the relationship, or more comprehensive measures are needed to further clarify this relationship. It is possible that the feminist attitudes assessed in the LFAIS have become more mainstream (i.e., they are held by feminists and non-feminists alike). Both the LFAIS and the ATFS only address attitudes and not actual self-identification as a feminist. The current study neither asked participants if they were feminists nor did it attempt to assess any actual involvement in feminist activities. While this was done to avoid alerting participants to the fact that feminism was the specific ideology being assessed, that information might be pertinent to further understanding these results. A person who scores highly on the scale but does not consider herself a feminist would not have the same theorized motivation for hiding dieting behaviors as would a self-professed feminist. Regardless of her score on a measure of feminist ideology, a weight loss diet for a woman who does not consider herself a feminist would not suggest the same threat to identity or ideology.

4.4. Limitations of current study

The non-random sampling procedure for this study limits the generalizability of the results. Vegetarians were largely recruited through fliers, e-mails and a local food co-op, while non-vegetarians were obtained primarily through undergraduate classes being provided with extra credit for participation. In an attempt to lessen the effects of these sampling procedures, non-vegetarians were also recruited through the food co-op; however, most of the participants recruited there were in fact vegetarian. Also, because the Boulder community has traditionally been quite liberal politically, this sampling procedure skewed the feminism scores upwards, as shown by the significantly higher levels of feminism endorsed by the Boulder participants. Despite specific recruitment efforts geared towards vegetarians, the number of semi-vegetarians, full vegetarians, and vegans who completed the study was still quite small, thus preventing a more differentiated comparison of levels of vegetarianism. Because of the small number of vegetarians within the entire sample, participants from both UNCO and Boulder were combined in the analyses despite significant differences in age, dietary restraint, and feminist identity between these two samples.

We can only speculate as to how the combination of these two samples might have influenced the findings of this study. In terms of utilizing vegetarianism as a guise for dieting, presumably such pressures would be greater among the Boulder sample wherein the individuals live in a more liberal political environment, may be more likely to define themselves as feminists, and may feel more accountable towards maintaining feminist ideals in their daily lives. Among students at UNCO, there is likely less general awareness that dieting can be perceived as inconsistent with feminism and students may be less likely to publicly assume a feminist identity. Thus, if feminist identity truly moderates the relationship between vegetarianism and dietary restraint, this relationship would be more likely to emerge among the Boulder participants than the UNCO participants. Yet despite the fact that the majority of vegetarians in this study were recruited from Boulder, there was still no evidence of the feminism–dietary restraint interaction in this sample.

4.5. Implications and future directions

Given the higher levels of dietary restraint that are evident among semi-vegetarians, semi-vegetarianism may be a risk factor for more pathological dieting behaviors, as well as the other potentially hazardous behaviors associated with dietary restraint. These problems among semi-vegetarians have been identified among adolescents (Perry et al., 2001) but require further examination among both adolescents and adults. In addition, future research will need to further examine dietary restraint among vegans. Little is known about dietary restraint and other eating behaviors among this population because most previous studies have failed to consider this group separately from other, less extreme vegetarian categories.

While the current study helps to clarify earlier research examining dietary restraint and vegetarianism, other variables related to vegetarianism and dietary restraint also need to be measured to further clarify this relationship. More extensive measures of motivation such as the Food Choice Questionnaire (Step toe, Pollard, & Wardle, 1995) with additional measures for ethical, political and religious motivation (Lindeman & Väänänen, 2000) might more accurately assess motivation. Additionally, in order to more directly test the assertion that full vegetarianism is less likely to be a weight loss strategy than semi-vegetarianism (because full vegetarianism takes more commitment and hard work) it is important to assess duration of vegetarianism and commitment or dedication to the lifestyle. Asking more specific questions about the frequency of meat consumption or consumption of animal products may give some idea as to the level of commitment. The problems associated with the differences between acceptance of feminist ideals and self-identifying as feminist should also be addressed, either through directly asking about feminist identity or through assessing involvement in the women's movement.

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