

## Empathy Profiles of Vegetarians

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### Abstract

*Two separate studies of vegetarians revealed higher empathy profiles when compared to non-vegetarians. In the first study (N= 388 university students), 14% self-identified as vegetarian, and their profile was raised on the Animal Attitude Scale (AAS), on an Attitude to The Treatment of Animals Scale (ATTAS), and on three Interpersonal Reactivity Index (IRI) scales (Fantasy, Empathic Concern and Personal Distress). There were no differences on Empathy Quotient scales (Cognitive Empathy, Emotional Reactivity, and Social Skills), nor on the IRI Perspective-Taking scale. In a second study (310 university students), 12.6% self-identified as vegetarian, and the vegetarian empathy profile was similar to Study 1 at several points (the ATTAS scale and two IRI scales—Empathic Concern and Personal Distress). They differed on the AAS. Distinct from Study 1, were the higher levels on Perspective Taking (IRI), Cognitive Empathy (EQ), and Social Skills (EQ). Combined, the studies reveal a general profile difference with vegetarians placing higher on empathy scales. Narrowing the focus we see the core similarities in the two studies—both studies showed higher vegetarian profiles related to the ATTAS, Empathic Concern, and Personal Distress. Second, there were differences between the two studies on key empathy variables, but again differences favouring vegetarian-linked empathy. Third, subtyping vegetarians showed differences between subtypes (on the Animal Attitude Scale and the Empathic Concern Scale). And fourth, scale differences between the vegetarian subtypes found in Study 1 versus Study 2 indicate a more fine-grained approach is warranted to establish the mechanisms that might be driving the different response patterns. While the results overall are assorted, what is clear is: (1) evidence of higher empathy in vegetarians which may then be the primary driver of vegetarianism, and (2) the need for more fine-grained analyses of the vegetarian subtypes, and their varied psycho-social infrastructures.*

## Introduction

Vegetarianism seems to be a growth industry as evidenced by shifts in offerings on restaurant menus, burgeoning bookshelves in bookstores, high profile public personalities “coming out,” media exposés of the treatment of animals, and so on. Although estimates of the growth rate are varied, a Harris Poll (<http://www.vrg.org/press/2009poll.htm>) from 2009 reports that 3% of the US adult population never eats meat, poultry and seafood; and 8% never eats meat. Of those who “never eat meat,” it is reported that 12% are female (age 18-34), 9% are male (age 18-34), and 15% are students, so a sex and an age difference seems evident in current formulations. In 2003, the “never eats meat, poultry and seafood” group was 2.8%, slightly lower than the 2009 report, and the “never eats meat” group was 6%, an apparent increase of about 33% for 2009 (<http://www.vrg.org/journal/vj2003issue3/vj2003issue3poll.htm>). Interestingly, a 1994 poll indicated that only 1% “never eats meat, poultry and seafood” and around 6% “never eats *red* meat” (<http://www.vrg.org/nutshell/poll.htm>). In other words, the numbers seem to be steadily climbing over the past 15 years, generally, but the data are obfuscated by various types of vegetarian practice. Self-identified vegetarians likely represent a great deal of diversity when it comes to definitions. Nevertheless, there seems to be some warrant for assuming an increase in vegetarian practice generally, and the 2009 poll data showing a higher rate for the student group (at 15%) is of interest here as student groups might serve as a prognosis for future trends.

In Great Britain, Armstrong and Botzler (2008) reported that 4.5% of the population was vegetarian around 1995. Similar statistics are available for 2008 and 2009 (<http://www.vegsoc.org/info/statveg.html>): in 2008, 2% were vegetarian and 5% were partly vegetarian (not eating some types of meat or fish), and in 2009, 3% were vegetarian and 5% were partly vegetarian. A shift from 2% to 3% over the course of one year is a 50% increase in those identified as vegetarian.

Of course, comparisons of polls, and confidence in polls, can be problematic. Questions can differ from year to year. Definitions of vegetarianism vary. Sample groups may be inconsistent and difficult to compare. At best, one can get a “ballpark” estimate of the number of people who self-identify as vegetarian, and one can gain an informed opinion regarding whether or not the numbers are stable, increasing, or decreasing.

The term “vegetarian,” according to Rifkin (2009), was first used in 1842, and five years later the Vegetarian Society was formed in Britain. It was a movement that Linzey (1994) saw as having biblical roots. He noted that William Cowherd, an Anglican priest, founded the Bible Christian Church in 1809, a unique church, in that vegetarianism was mandatory for members. Linzey (1994) further noted that the slow growth of vegetarianism from then to 1970, and its rapid surge from 1970 to the present, suggested that Cowherd may have been on to something. Maybe mainstream biblical theology had overlooked something theologically significant in biblical texts, particularly, the book of Genesis with the vegetarian model set in the first chapter.

The concern for the plight of animals, then, would not be just a modern-history phenomenon. In the recent past, say the past two centuries, such a concern has been paired with a concern for the abolition of slavery. Rifkin (2009) noted that Jeremy Bentham, in the late eighteenth century, compared the situation of domestic animals to that of slaves; moreover,

Bentham hoped the day would come when the animal creation would gain rights, rights denied to them as a function of domination viewed as tyranny. While this is a principled position, paradoxically, Bentham did not go so far as to practice vegetarianism (Pollan, 2006). Further, Rifkin (2009) points to the rights movements in the 19<sup>th</sup> century, noting that activists from the antislavery, women's suffrage, and child labor reform movements were also outspoken animal protection advocates, and they did practice vegetarianism. In the United States, these included antislavery advocate Horace Greeley and prominent women's rights advocates—activists like Lucy Stone, Susan B. Anthony, Amelia Bloomer, and Elizabeth Cady Stanton.

Still earlier, it is commonplace knowledge that St. Francis and St. Benedict were compassionately concerned about animals. In this religious stream, the biblical literature, whether Jesus' reference to God seeing the lowly sparrow fall, or the earlier Hebrew prophetic literature, was viewed as foundational for moral concern about animals. Consider: (1) the Mosaic laws *against* unequally yoking animals and *for* providing Sabbath rest for animals; (2) in the story of Jonah we read of God's expressed compassion for the animals in Nineveh as a reason factored in to justify sparing Nineveh; (3) when Nathan the prophet confronts David regarding his adultery (and murder) he tells the king a story about a poor man who has his family's pet lamb confiscated by the rich landowner for a feast. David's sense of outrage at the lack of compassion, and his sense of injustice, suggests both a compassion for animals in the human heart, and the resident condemnation in the heart against any injustice. We either cringe, or cheer, when Nathan responds to David's outrage with the omnivorous words: "Thou art the man." David was the man that David, himself, condemned. These scattered points in the early biblical literature contained premises and principles from which empathy-advocates constructed the case for a Biblical ideal of compassion, mercy, and subsequently, vegetarianism (Linzey, 1994; Scully, 2002). And, with respect to the next step, vegetarianism, the key text from the Hebrew creation narrative in Genesis is particularly foundational: "Then God said, 'Behold, I have given you every plant yielding seed that is on the surface of all the earth, and every tree which has fruit yielding seed; it shall be food for you; and to every beast of the earth, and to every bird of the sky and to everything that moves on the earth which has life, I have given every green plant for food'; and it was so" (Genesis, 1: 29-30, NASB). This original principle of vegetarianism in Genesis, points to an ideal—an ideal that is still an important principle for some in various religious camps (Linzey, 1994).

Moreover, vegetarian concerns are not just an ancient "Jerusalem" phenomenon; "Athens" offers significant philosophical roots as well. In Fox's (1999) historical overview he points to such prominent Greek vegetarians as Pythagoras, Empedocles, Epicurus, Plutarch, Plotinus, and most notably, Porphyry. Even Plato gets an honourable mention but only because he saw vegetarian practice as an ideal, not because he was a vegetarian. Throughout the history of the past few millennia the advocacy of vegetarianism, or the advocacy of the ideal of vegetarianism, has been intertwined with both theological and philosophical reflective streams.

The modern concern for animals is more closely tied to concerns about animal farming, cruelty, scientific experimentation, sports, animal rights, and so on (e.g., Foer, 2009; Singer, 2009). In the context of these focal points there is clearly a range of positions within various rational camps of those who express concern about animals—from focused critic (Foer, 2009), to balanced critic (Herzog, 2010), to conservative critic (Smith, 2010), to ideological critic (Flynn, 2004). In the midst of such logical critiques, the call for mercy, kindness, and

compassion, is heard, but often tenuously, or ambivalently. And the move towards a vegetarian ideology likewise seems logical at some levels, although not consistently rational given (1) the inconsistencies consistently noted (Herzog, 2010; van der Kooi, 2010), and (2) the vegetarian vicissitudes. For example, Kerasote (1993) goes from hunter, to vegetarian, and then back to a more conscientious hunter (mindful in the Buddhist sense) with all the attendant paradoxes; and, Herzog (2010) notes there are more ex-vegetarian than vegetarians.

Why does one opt for the vegetarian lifestyle? What leads: the head or the heart? Bekoff (2007), for one, eventually realized he could not abide the killing of an animal for it to become his meal. As onlookers, we can empathize with his rationale. He further notes it made him feel better. As onlookers, we can understand such an emotional consequence. He explored additional reasons beyond the personal ethical position (e.g., environmental benefits) which might strengthen such a case for vegetarianism. As fellow travellers, we assimilate such arguments into our own panoply of considerations. Indeed, one accumulates arguments based on health, religion, culture, diet, kindness, dominion, and ethical systems—for example, Singer's (2009) systematic utilitarianism, Regan's (2004) systematic deontology, and Lindzey's (1994) systematic theology. But the arguments often fail to cohere, convince, or compel, as the critics have noted (Herzog, 2010, Kerasote, 1993; Pollan, 2006; Smith, 2010; van der Kooi, 2010).

The admirable motivational principle of “lessening intentional harm” can overlook the other side of the coin—increasing collateral harm. Is it possible, using a utilitarian calculus, that a shift to vegetarian practice could lead to more lives lost (see Smith, 2010; Davis, 2001), more harm done (Kerasote, 1993), or, at least, a lack of investigative clarity on whether the vegetarian approach would lead to more collateral damage (Pollan, 2006)? Again, then, one wonders: is it the head or the heart that is primary in pushing one to vegetarianism?

When considering the multi-faceted topic of vegetarianism conceptually, and on the cerebral side of the coin, one can look at it from a number of different perspectives. First, there is a *political* facet, which raises political questions regarding the treatment of animals in such areas as agribusiness, economy, infrastructure, and environmentalism. There is the *scientific* facet which focuses on the growth of knowledge and the advance of science and safety based on animal experimentation and product testing. There is a *theological* facet in which issues are raised regarding human responsibility for stewardship, mercy, kindness, and “dominion.” There is a *moral* facet, viewing issues related to the suffering, death, and “rights” of animals, and our relationships with them. There is a *philosophical* facet, in which one considers human behaviour with respect to animals, considerations such as analogical (compared to slavery), pragmatic (compared to self-interests, self-protection, species preservation), or existential (compared to colonization, or more recently democratization). There is a *historical* facet, giving consideration to the patterns of vegetarianism in our distal history (i.e., Ancient Greece, India, Rome, Medieval Europe, Enlightenment), or our proximal history (20<sup>th</sup> Century feminism, current environmentalism, post-modernity, and student movements). And then there is a *psychological* facet, in which the thinking processes such as critical thinking, cognitive dissonance, logical fallacies, and defense mechanisms (Herzog, 2010; van der Kooi, 2010) are active when considering vegetarianism. But further, given psychological considerations, such factors as personality, developmental processes, and identity would come into play; and such personality factors could be indicative of the other side of the coin, with the flares of the heart preceding the affairs of the head.

In view of the problems with consistent, rational, and moral arguments, it would be worth positing that a significant determinant of vegetarianism—a primary determinant—would be the personality of the vegetarian, particularly any empathic personality attributes that are characteristic of vegetarians. Given this possibility our primary focus here was on personality variables related to empathy.

It is clear that there is a compelling interest in empathy in current psycho-social and philosophical thought. Indeed, de Waal (2009) sees empathy as the major theme of our age, and Rifkin (2010), more dramatically, compares this current empathy age to an eclipse—an eclipse of the Age of Reason. Given this popular emphasis on empathy, which extends to anthrozoology (Ascione, 1992; Ascione & Weber, 1996; Daly & Morton, 2003, 2006; Hergovich, Monshi, Semmler, & Zieglmayer, 2002; Melson, Peet, & Sparks, 1992; Melson, 2003; Paul & Serpell, 1993; Paul 2000), our interest in building a personality profile of the self-identified vegetarian seems timely. Thus, our research question: are vegetarians typically more empathic than non-vegetarians? It is reasonable to posit such a position as a working hypothesis since it is pretty much a truism that vegetarians are "soft" on animals. In fact, empathy may be the strongest motive driving a vegetarian ideology initially—stronger than reason, arguments, ethical conundrums, social pressures, health, and so on. The rationale from the head may be the post hoc rationalization to validate the heart.

## Methodology

### Instruments

*Animal Attitude Scale (AAS)* (Herzog et al., 1991). The AAS is a 20-item self-report questionnaire to measure individual attitudes toward animals, with answers ranging from "Strongly Agree" to "Strongly Disagree." An additional question was added to the author's version. The following item appears in the original questionnaire: "There should be extremely stiff penalties, including jail sentences, for people who participate in cock-fighting." As a point of future interest in discriminating between potentially different attitudes toward birds and toward dogs (Daly & Morton, 2003, 2006), the following item was added: "There should be extremely stiff penalties, including jail sentences, for people who participate in dog-fighting."

*Attitude to The Treatment of Animals Scale (ATTAS)* (Henry, 2004). This is a 26 item instrument that taps into attitudes towards animals (killing, hurting, using in research, failing to provide appropriate care, and so on). People are asked how much it would bother them with respect to various forms of mistreatment. They answer on a five-point scale ranging from "not at all" to "a lot."

*Davis (1980) Interpersonal Reactivity Index (IRI)*. The IRI is one of the most effective (Muncer & Ling, 2006) and commonly used self-report empathy instruments (Alterman, McDermott, Cacciola, & Rutherford, 2003) and has been employed in recent HAI investigations (i.e., Henry, 2006; Taylor & Signal, 2005). Participants indicate their responses on a five-point Likert scale ranging from "Does Not Describe Me Well" to "Describes Me Very Well." The 28 items comprise four subscales, each of which taps four different dimensions of empathy and assess four distinct qualities (Davis, 1980). The four subscales are as follows: (1) Fantasy Scale (FS), which explores the respondent's inclination to identify with fictitious characters, such as those

from books or movies; (2) Perspective Taking Scale (PT), which measures the individual's ability to adopt another person's view; (3) Empathic Concern Scale (EC), which assesses the respondent's ability to feel compassion for others who engaged in negative experiences; and (4) Personal Distress Scale (PD), which indicates the extent to which individuals witness others' negative experiences, resulting in their own anxiety and discomfort. While this empathy instrument has been used in previous research in order to measure human-directed empathy (Alterman et al., 2003; Miller & Eisenberg, 1988; Perez-Albeniz & de Paul, 2004), Taylor & Signal (2005) have reported significant correlations between this instrument and attitudes toward animals (Empathic Concern Scale,  $r = .33$ ).

*The Empathy Quotient (EQ)* (Lawrence, Shaw, Baker, Baron-Cohen, & David, 2004). This is a self-report measure of empathy originally developed by Baron-Cohen and Wheelright (2004) as a clinical application sensitive to a lack of empathy in individuals with a psychopathology, most notably individuals with reported autism spectrum disorders (Lawrence et al., 2004). However, Lawrence et al. (2004) conducted a series of studies confirming the reliability and validity of the scale in healthy populations as well, reporting a three-factor structure which was deemed "a better fit" in a psychometric analysis of the scale (Muncer & Ling, 2006). The three factors of empathy are: (1) cognitive empathy, which examines the appreciation of affective states; (2) emotional reactivity, which is the tendency toward emotional reactions as a response to other individuals' mental states; and (3) social skills, which measures the use of skills related to, or lacking in, social understanding.

### Procedure

Students enrolled in large on-line introductory writing classes open to all undergraduate students were invited to participate in the research through the course website. They completed the survey on an internet website, Survey Monkey. The data were downloaded and analyzed using SPSS. The independent variable was self-identification as a vegetarian (Yes/No). The nine dependent variables were: Attitude Towards Animals (AAS), Attitude to the Treatment of Animals (ATTAS), the four IRI scales of Fantasy (FS), Perspective Taking (PT), Empathic Concern (EC), and Personal Distress (PD), and the three Empathy Quotient scales of Cognitive Empathy (CE), Emotional Reactivity (ER), and Social Skills (SS).

Profile analyses were conducted (Tabachnick & Fidell, 2001) to examine the profiles of vegetarians and non-vegetarians on scales related to empathy. To facilitate this analysis all scores were first converted to standard scores (z-scores) using the two available data sets (Study One and Study Two). Then subjects were extracted from each data set for whom we had complete data on all nine scales under consideration. Multivariate analysis of variance (MANOVA) was planned to examine the profiles with respect to levels, flatness, and parallelism. Given the likelihood of sex differences in empathy, Sex was entered as a covariate. As a working hypothesis, we predicted that vegetarians would show more concern for animals, and stronger empathy profiles in their personality profile.

## Study One

## Participants

In the first study of a sample of 388 university undergraduate students (31% male) from a university in southwestern Ontario (Canada), 14% self-identified as vegetarian. Ages ranged from 17 to 52 years (Mean = 21.15 years, SD = 4.65). The declared majors exceeded ten, and indicated a broad range of student-types, including in decreasing order: Sociology (19.7%), Psychology (16.7%), Business (13.3%), Science (9%), Arts (6.2%), Nursing (5.9%) and History-Political Science (4.6%), and others.

## Results

Using Sex as a covariate, the two-way MANCOVA (Group by Scale) with the Scale variable treated as a repeated measure showed a main effect for Levels (Group),  $F(1, 385) = 10.99$ ,  $p < .01$ , with the Vegetarian group showing the higher empathy-related responses. There was a main effect for Flatness (Scale),  $F(8, 378) = 4.78$ ,  $p < .001$ , which was qualified by an effect for Parallelism (Scale by Group interaction),  $F(8, 378) = 2.30$ ,  $p < .025$ . The subsequent univariate analyses revealed the effects in the omnibus test were driven by vegetarians scoring higher on the following scales: AAS,  $F(1, 388) = 19.81$ ,  $p < .001$ ; ATTAS,  $F(1, 388) = 5.12$ ,  $p < .025$ ; IRI-FS,  $F(1, 388) = 4.89$ ,  $p < .05$ ; IRI-EC,  $F(1, 388) = 5.23$ ,  $p < .05$ ; and the IRI-PD,  $F(1, 388) = 4.39$ ,  $p < .05$ . There were no differences on the other scales (see Table 1 for means and SDs, and Figure 1 for a graphic representation). This is an interesting, informative, and somewhat logical profile. As may be seen in Figure 1, it is clear that the vegetarians show a dramatically different profile from non-vegetarians.

**Table 1. Descriptive Statistics of z-scores For Study One<sup>a</sup>**

	Are you a vegetarian?			
	Yes (N=55)		No (N=333)	
	Mean	SD	Mean	SD
AAS Animal Attitudes**	.61	1.28	-.06	.91
ATTAS - Attitude to the Treatment of Animals**	.35	.88	-.02	.96
IRI Perspective Taking	.07	1.02	.00	1.00
IRI Fantasy Scale*	.32	.82	-.04	1.03
IRI Empathic Concern**	.35	.86	-.02	.98
IRI Personal Distress*	.30	1.11	-.04	.98
EQ-Cognitive Empathy	.24	1.02	.00	.95
EQ-Emotional Reactivity	.27	.92	.01	.96
EQ-Social Skills	.02	1.05	.03	.95

a.\* $p < .05$ , \*\* $p < .01$

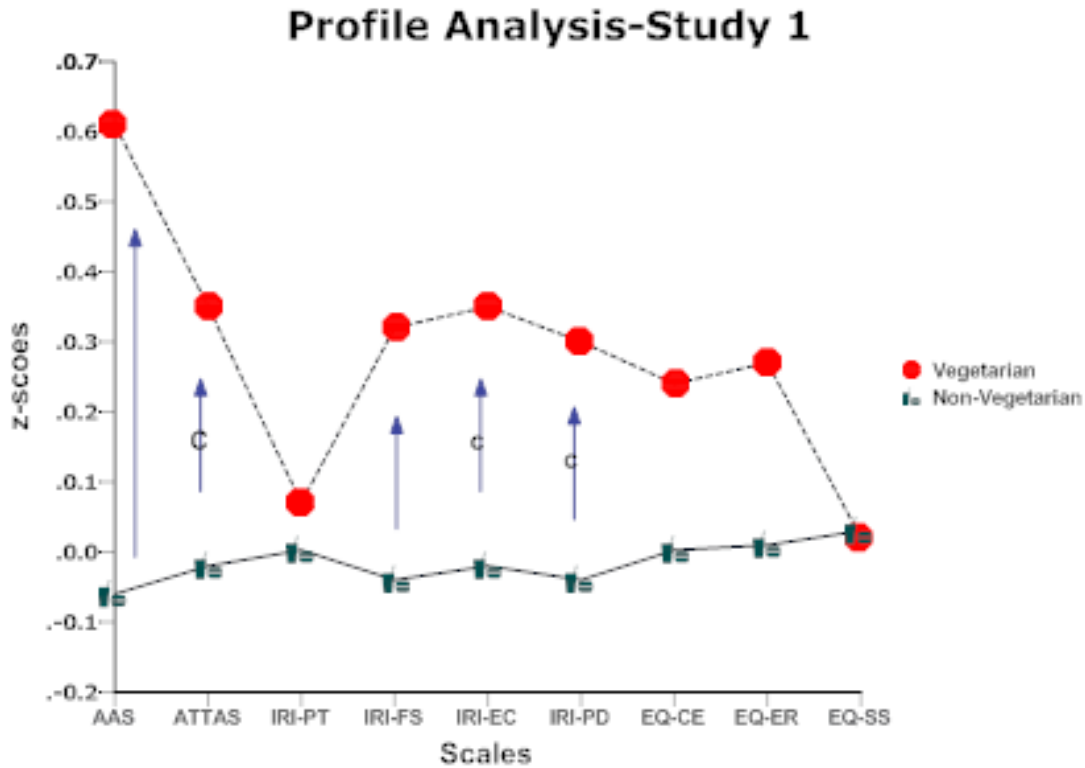


Figure 1. Showing the higher level of empathy generally for vegetarians (statistically significant differences indicated with arrows) and where the parallelism breaks down: there are no differences on IRI Perspective Taking, nor on the three Empathy Quotient Scales. The arrows indexed with a C indicate commonalities with Study Two.

Study Two

Participants

In Study Two (S2) (n=310), 32.6% of the sample was male and of the sample 12.6% self-identified as vegetarians. Ages ranged from 17 to 46 years (Mean = 21.33 years, SD = 4.67). Again, the range of majors indicated diversity and included, in decreasing order: Arts & Social Sciences (67.6%), Social Work (8.7%), Education (5.8%), Business (4.2%), Science (3.8%), Nursing (0.6%) and others. Unfortunately, the same education categories were not used for both studies which precluded informed comparisons between the two samples. Such background differences as this may contribute to differences in profiles.

Results

The two-way MANCOVA (Group by Scale) with the Scale variable treated as a repeated measure showed a main effect for Levels (Group),  $F(1, 307) = 19.63, p < .001$ , with the Vegetarian group showing the higher empathy-related responses. There was a main effect for Flatness (Scale),  $F(8, 300) = 9.68, p < .001$ , which was qualified by an effect for Parallelism



(Scale by Group interaction),  $F(8, 300) = 2.02, p < .05$ . The subsequent univariate analyses revealed the effects in the omnibus test were driven by vegetarians scoring higher on the following scales: ATTAS,  $F(1, 310) = 12.86, p < .001$ ; IRI-FS,  $F(1, 388) = 4.89, p < .05$ ; IRI-EC,  $F(1, 310) = 3.74, p = .05$ ; IRI-PD,  $F(1, 310) = 7.48, p < .01$ ; IRI-PT,  $F(1, 310) = 7.90, p < .01$ ; EQ-CE,  $F(1, 310) = 5.57, p < .025$ , and the EQ-SS,  $F(1, 310) = 4.46, p < .05$ . There were no differences on the other scales (See Table 2 for means and SDs, and Figure 2 for a graphic representation).

While score differences here were similar to Study One with respect to three scales (ATTAS, Empathic Concern, and Personal Distress), there were no differences between vegetarians and non-vegetarians in animal attitudes (AAS). However, vegetarians had significantly higher scores compared with non-vegetarians on the empathy scales of Perspective-Taking (IRI), as well as Cognitive Empathy and Social Skills on the Empathy Quotient Scales (Lawrence et al., 2004).

**Table 2. Descriptive Statistics For z-scores For Study Two<sup>a</sup>**

	Are You a Vegetarian?			
	Yes (N=39)		No (N=271)	
	Mean	SD	Mean	SD
AAS Attitude To Animals	-.05	.96	.03	.96
Attitude To The Treatment of Animals (ATTAS)**	.53	.81	-.08	1.00
IRI-Fantasy Scale	.16	1.09	.10	.94
IRI-Empathic Concern*	.27	1.02	-.06	.99
IRI-Personal Distress**	.42	1.02	-.05	.99
IRI-Perspective Taking**	.45	.98	-.03	1.01
EQ-Cognitive*	.37	.94	-.03	1.00
EQ-Emotional Reactivity	.24	1.12	-.03	.98
EQ-Social Skills*	.34	1.13	-.03	.99

a. \* $p < .05$ , \*\* $p < .01$

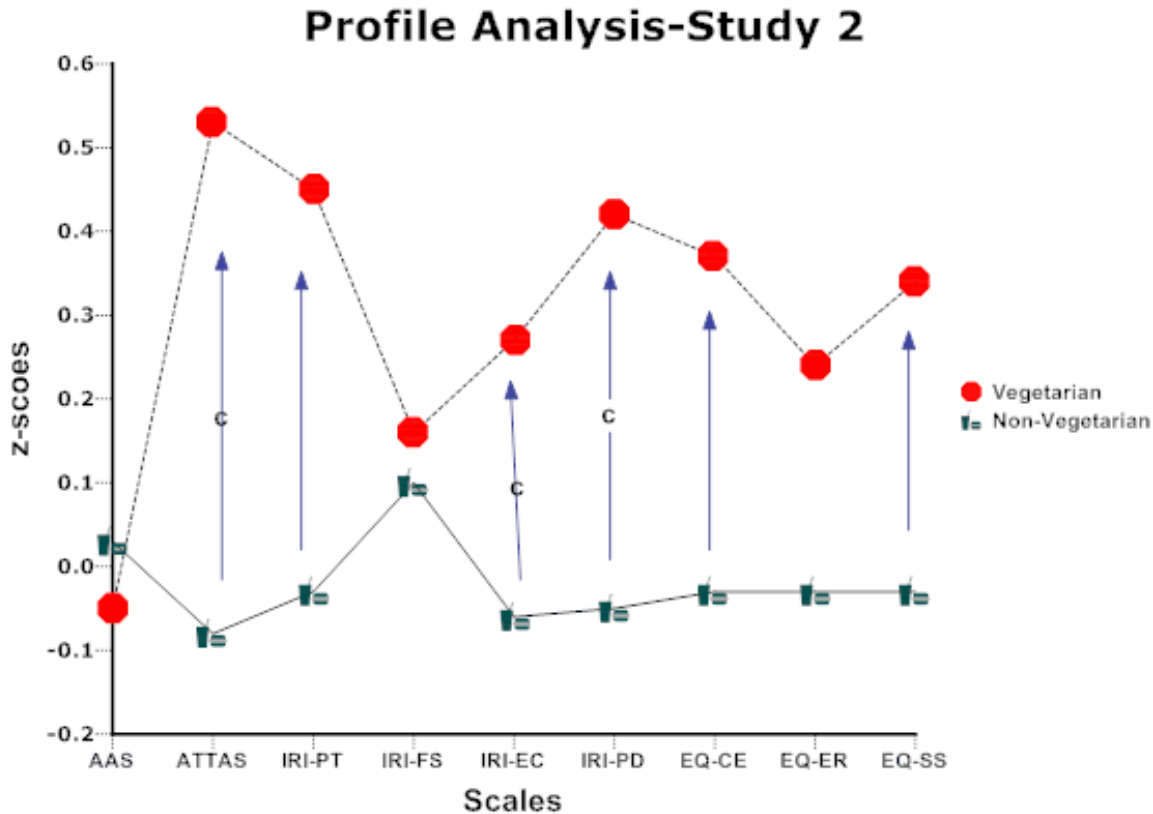


Figure 2. Showing the higher level of empathy generally for vegetarians (statistically significant differences indicated with arrows) and where the parallelism breaks down: there are no differences on AAS, IRI Fantasy Scale, nor on the EQ Emotional Reactivity Scale. The arrows indexed with a C indicate commonalities with Study One.

First then, there is a striking higher profile for vegetarians in both studies. Secondly, there are core variables where the two studies are consistent in showing higher levels (i.e., ATTAS, IRI Empathic Concern, and IRI Personal Distress). But thirdly, there are differences between the two vegetarian groups, where vegetarians are higher, and it is not clear what might be driving such differences. We do not have sufficient data to tease apart the differences between the two groups related to personality, background majors, and specific course influences. Our cursory examination of different majors was not informative. Though reasons for the differences between S1 and S2 were not immediately evident, more S2 participants had indicated they were “moral vegetarians” (28.2% vs 20%), and more participants in S2 indicated a link to cultural/religious reasons (28.2% vs 21.8%). These differences may be relevant. Given previous research exploring this (Preylo and Arikawa, 2008), we culled the vegetarians for further analyses.

Reasons	Study 1	Study 2
Cultural/Religious	21.8%	28.2%
Moral Reasons	20.0	28.2%
Just because it's healthy	10.9%	15.4%
Don't like taste of meats	29.1%	28.2
Other	18.2%	NA

There were limitations related to small cell sizes in Study One (Moral Vegetarians, N=14; Cultural/Religious Vegetarians, N =22; Health Vegetarians, N=6; Taste Vegetarians N = 25) and Study Two (Moral Vegetarians, N=16; Cultural/Religious Vegetarians, N =12; Health Vegetarians, N=6; Taste Vegetarians N = 14). Nevertheless, our organization of the vegetarians into these four groups: (1) Moral Vegetarians, (2) Health Vegetarians, (3) Cultural/Religious Vegetarians, and (4) Taste-Aversion Vegetarians, permitted some preliminary analyses. Analyses were run using the nine dependant measures and MANCOVA for each data set (Study One and Study Two) to examine differences between vegetarian types.

In Study One, the MANCOVA was significant,  $F(27, 168) = 1.6, p < .05$ . Post hoc analyses, to explain the omnibus effect, showed that both Moral Vegetarians and Health Vegetarians were higher on the AAS than Cultural/Religious Vegetarians ( $p < .01, p < .025$ , respectively) and Taste-Aversion Vegetarians ( $p < .01, p < .05$ , respectively) (see Table 4 for means and standard deviations). Furthermore, Culture/Religious Vegetarians were higher on Empathic Concern than Moral Vegetarians ( $p < .05$ ).

**Table 4. Descriptive Statistics Study 1 -- Vegetarian Reasons**

	Why Vegetarian							
	Culture-Religious (N=22)		Moral (N=14)		Health (N=6)		Taste-Aversion (N=25)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Animal Attitude Scale 5-pt*	<b>3.29</b>	.41	4.05	.59	4.02	.71	<b>3.40</b>	.90
ATTAS/26	3.97	.58	3.79	1.34	3.51	1.84	4.00	.77
IRI Perspective Taking 5-pt	3.45	.63	3.40	.63	3.40	.40	3.51	.62
IRI Fantasy Scale 5-pt	3.39	.71	3.56	.73	3.93	.31	3.51	.62
IRI Empathic Concern 5-pt*	3.82	.49	<b>3.51</b>	.47	3.90	.44	3.69	.39
IRI Personal Distress 5-pt	3.11	.74	2.87	.87	2.83	.61	2.82	.56
EQ-Cognitive Empathy 4-pt	3.09	.47	2.82	.93	2.94	1.50	3.18	.35
EQ-Emotional Reactivity 4-pt	3.12	.39	2.79	.92	2.76	1.43	3.09	.41
EQ-Social Skills 4-pt	2.81	.29	2.65	.91	2.48	1.29	3.04	.42

\*p < .05

Note. Means in bold are key considerations for the effects noted.

With respect to the data from Study Two, the MANCOVA analysis did not show an effect in the omnibus test,  $F(27, 108) = 1.25, p > .1$ . However, the post hoc analyses are presented as comparators for Study One, and as potentially of interest for future research directions. On the AAS, Cultural/Religious were higher than Moral Vegetarians ( $p < .05$ ). On the ATTAS, Moral Vegetarians placed higher than the Cultural/Religious Vegetarians ( $p < .025$ ). On the Empathic Concern scale, Moral Vegetarians and Cultural/Religious were higher than Health Vegetarians ( $p < .01$ ); and, Taste-Aversion Vegetarians were also higher than Health Vegetarians ( $p < .05$ ). On the Personal Distress Scale, Health Vegetarians were lower than Moral Vegetarians ( $p < .05$ ) (see Table 5 for means and standard deviations).

**Table 5. Descriptive Statistics Study Two -- Vegetarian Reasons**

	Why Vegetarian							
	Culture-Religious (N=16)		Moral (N=12)		Health (N=6)		Taste-Aversion (N=14)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
AAS 5-pt*	3.38	.28	<b>3.18</b>	.21	3.29	.29	3.25	.18
ATTAS/26*	<b>3.88</b>	.78	4.48	.37	3.87	.79	4.25	.55
IRI-Perspective Taking 5-pt	3.66	.75	3.67	.41	3.79	.75	3.66	.67
IRI-Fantasy Scale 5-pt	3.46	.83	3.44	1.01	3.12	1.07	3.48	.87
IRI-Empathic Concern 5-pt*	4.18	.74	4.31	.46	<b>3.24</b>	.86	3.93	.44
IRI-Personal Distress 5-pt*	3.16	.63	3.29	.58	<b>2.60</b>	.66	2.87	.73
EQ-Cognitive Empathy 4-pt	3.22	.47	3.22	.31	3.23	.39	3.43	.46
EQ-Emotional Reactivity 4-pt	2.57	.20	2.62	.31	2.67	.53	2.55	.17
EQ-Social Skills 4-pt	2.41	.45	2.42	.37	2.53	.52	2.26	.42

\*p &lt; .05

Note. Means in bold are key considerations for the effects noted.

That the profiles for vegetarians differed between the two study samples indicated differences in vegetarians warranted further consideration. Consequently, as a further follow-up we compared the vegetarian subtypes between the two samples. The comparisons for the four subtypes are presented graphically in Figures 3-5.

The participants in the first study data set who were Religious/Cultural Vegetarians were higher on Emotional Reactivity,  $t(36) = 5.16$ ,  $p < .001$ , and Social Skills,  $t(36) = 3.33$ ,  $p < .01$  (see Figure 3). That is the same pattern as with the Taste Aversion Vegetarians, where both Emotional Reactivity,  $t(37) = 4.68$ ,  $p < .001$ , and Social Skills,  $t(37) = 5.56$ ,  $p < .001$ , were higher for sample one participants (see Figure 4). On the other hand, the Moral Vegetarians in the second study data set, while testing lower on Attitudes toward animals,  $t(24) = 4.8$ ,  $p < .001$ , were higher on the Empathic Concern scale of the IRI,  $t(24) = 4.41$ ,  $p < .001$  (see Figure 5).

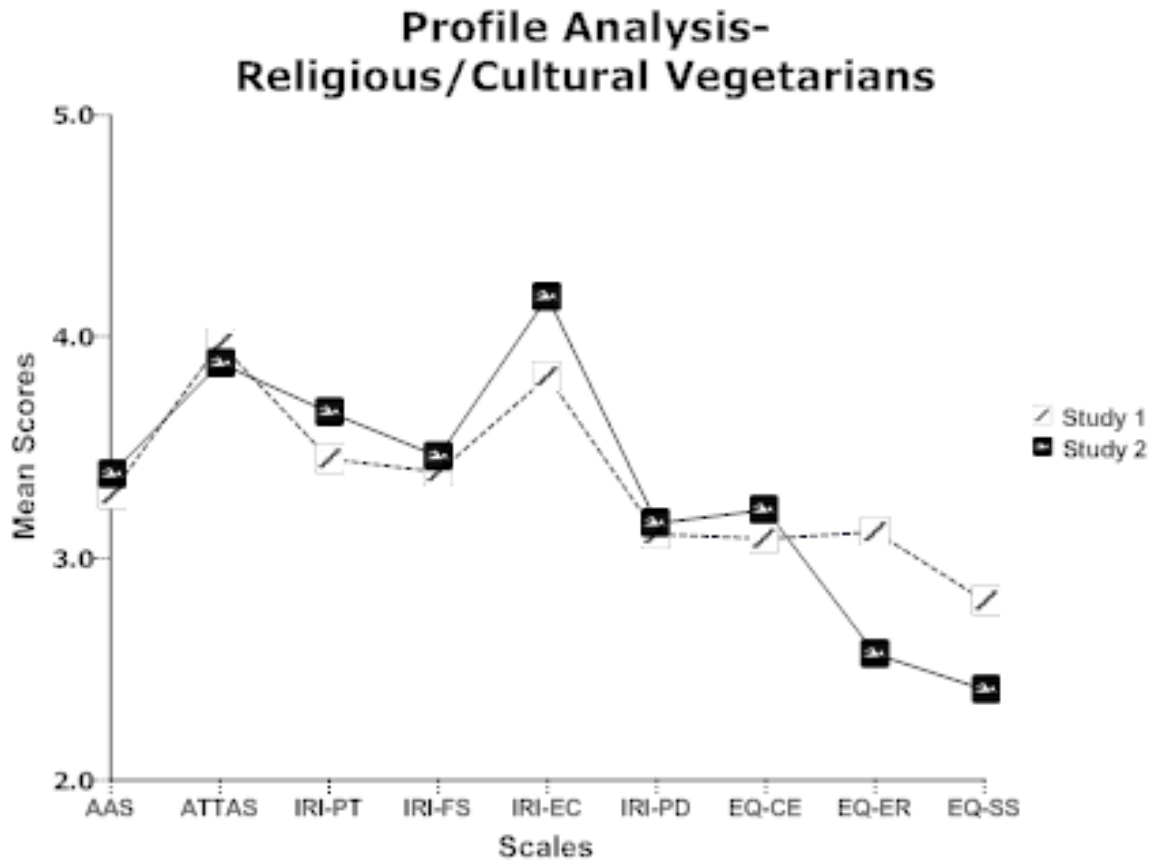


Figure 3. Showing the significant difference on two Empathy Quotient Scales (Emotional Reactivity and Social Skills) for Religious/Culture Vegetarians in the two study samples.

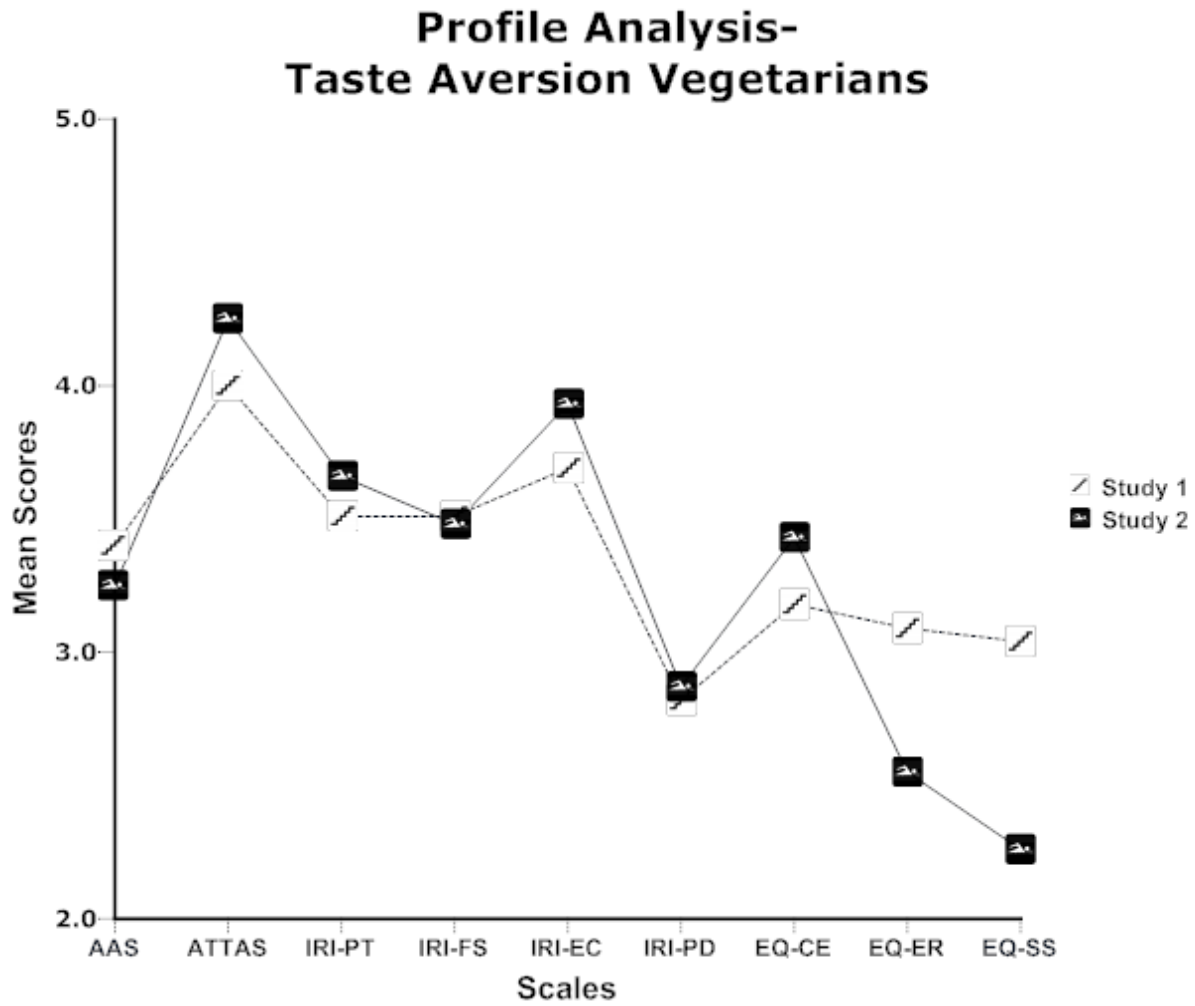


Figure 4. Showing the significant difference on two Empathy Quotient Scales (Emotional Reactivity and Social Skills) for Taste Aversion Vegetarians in the two study samples.

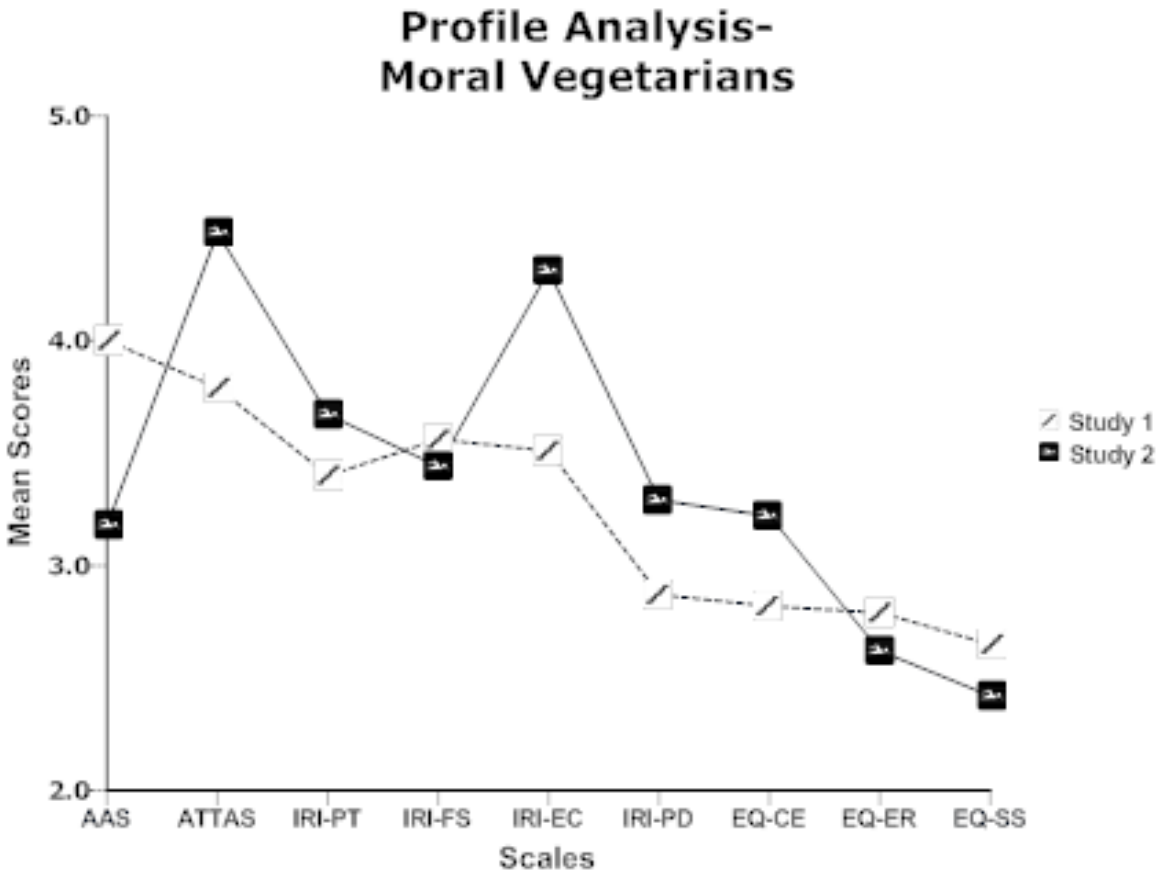


Figure 5. Showing the significant difference on two Scales (AAS and IRI-EC) for Moral Vegetarians in the two study samples.

There were no differences between the two samples for the Health Vegetarian subtype. Most likely, detecting differences between these two groups was impeded by the small cell sizes ( $N = 6$ ) for this vegetarian subtype.

#### Discussion

First, there is what could be called the *common effect* or reliable effect. It is worth noting that there is a core empathic difference seen in the two studies, a difference that is common to both studies. Specifically, vegetarians show a common higher empathic profile on the Attitude to the Treatment of Animals Scale, Empathic Concern, and Personal Distress. These attributes would be considered reliable given the consistency between the two studies. Thus, it seems credible to claim that vegetarians, as a general group, show higher empathy than non-vegetarians, at least in select areas. What this effect may very well indicate is that an important impetus towards vegetarianism is a psychological impetus, namely, an empathic personality profile. This would help explain the challenges to ethical consistency and logical coherence in the vegetarian position, a problem noted by many (Davis, 2001; Herzog, 2010; Smith, 2010; van

der Kooi, 2010). In effect, if vegetarianism is driven by personality, then ethical consistency and logical coherence could be post-hoc constructions to justify one's position.

Second, there is a *mottled effect*—a less stable effect, or shifting effect. What we see is evidence that vegetarians in differing data sets show higher empathy scores on differing empathy measures (i.e., Perspective Taking, Cognitive Empathy, Social Skills, Animal Attitudes and the Fantasy Scale). Since such effects were not replicated between studies, it is not clear what these scale differences may be functionally dependent upon in addition to the vegetarian identity. It may be that there are correlates (e.g., personality, culture, educational background, school experiences, life experiences, etc.) of some aspects of vegetarianism that align with different aspects of empathy. The fact that in one study, or the other, these additional attributes of empathy did surface, however, is worth noting as in both studies the effects point to higher empathy in vegetarians. While offering support for our working hypothesis regarding increased empathy in vegetarians, these differing effects raise questions about the nature and scope of empathy in vegetarian orientations, and the need for future research design considerations to address such differences.

Third, there is the *subtype effect*. There seems to be a credible case for better categorizing or subtyping of vegetarians. Admittedly, the relatively small percentage of a population that identifies as vegetarian can interfere with such subtyping research; nevertheless, our findings of differences between subtypes, suggests such research is desirable. In Study One, the analysis of the vegetarian subtypes which we configured did show differences on two scales (i.e., Animal Attitude Scale and the Empathic Concern Scale). Moreover, there is a reasonable suspicion that self-identified vegans could offer different profiles from self-identified vegetarians. Equally interesting, potentially, would be the profiles of ex-vegetarians; Herzog (2010) notes that this group is larger than vegetarians by a factor of three-to-one. Given large enough samples, there are possible moral vegetarian subtypes (e.g., consequentialists and deontologists) and possible "religious" vegetarian subtypes (Hindu, Islamic, Jewish, Christian, etc.), as well.

Finally, the fourth focus we term the *veiled effect*. Here the point is that differences between the vegetarian subtypes found in Study 1 versus Study 2 indicate a more fine-grained approach is warranted to try and establish the mechanisms, and veiled variables, that might be driving these differences. Between the two studies/samples, it seems that Emotional Reactivity and Social Skills differ for Religious/Cultural Vegetarians and Taste-Aversion Vegetarians, with no hint regarding why this might be the case. Similarly, there remains the question of why the Moral Vegetarians are higher on Empathic Concern only in the second study. There are likely some logical, or demographic, variables that could be examined more closely in the future. Influencers might be something such as differing university coursework, or the philosophies of the differing secondary schools from which many of these students came, or perhaps a media story giving high profile coverage to an animal abuse scandal around the time of the data collection. In addition, such differences may be associated with background demographics related to pet ownership or life experiences with animals. The fact that Social Skills differed between the two studies for two subtypes may offer a suggestion related to personality. Are there introversion/extraversion differences between the two samples? Would there be differences related to people-oriented majors versus subject-oriented majors? These are questions which could be examined more closely in future research.



While we did detect differences between types of vegetarians in the post hoc analyses, the sample sizes (cell sizes) precluded assured confidence in these more fine-grained findings. Nevertheless, in view of the overall results, one can speculate as follows: if vegetarians are actually positioned on the empathic high ground, and are situated in some type of vanguard of the cultural trends toward increased empathy (de Waal, 2009; Rifkin, 2010), there would be a case for more in-depth consideration of vegetarians, empathy, and their correlates, along with the social implications. One social implication would relate to education; humane education is logically linked with empathy and vegetarianism (Pedersen, 2010; Weil, 2004). While humane education extends to such social movements as animal welfare, the psychology of compassion and mercy, the philosophical arguments for animal ethics, and even animal rights (though this is a contentious issue—Cohen & Regan, 2001; Regan, 2004; Rollin, 2006; Smith, 2010), there is clearly a place at the table for vegetarian issues.

Early humane education could be an important vehicle to further facilitate the unfolding of empathy, the development of empathy, or even the construction of empathy, before the hardening of life experience takes its toll on feeling and thinking which targets humans and animals. If Rifkin (2010) and de Waal (2009) are correct regarding the growth trend of empathy, we can expect further broadening of empathy, and consequently further broadening of vegetarianism. Education would help. And, more fine-grained research examining the profiles of vegetarians, and the psycho-social rationales underlying vegetarianism, could be fruitful!

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