

A Comparison of the Impact of Plant-Based and Meat-Based Diets On Overall General Well-Being

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Abstract

The intention of this project is to explore the correlation between dietary habits and reports of overall well-being. Specifically, this study will consider the impact of meat-eating versus non meat eating (vegetarian/vegan) diets. Dietary choices are also considered in comparison to general lifestyle choices. Questionnaires were distributed to students on the Boca Raton campus of Palm Beach State College. The results of this survey indicated that vegetarians believe that dietary choices have a greater impact on well-being than they actually do. In addition, the subjective well-being of vegetarians compared to that of meat eaters showed inconsistent results. This may be attributable to the fact that some vegetarians choose this lifestyle for ethical reasons such as guilt over the slaughter of animals, leading to an increased feeling of well-being. On the other hand, a higher percentage of vegetarians report regular marijuana use, which could lead to depression caused by a chemical imbalance in the brain. However, because most participants in the study were meat eaters, fewer vegetarians were included in the sample. Further exploration with a larger sample base is needed to explain the inconsistent results.

Introduction

“Food consumption is an everyday activity, one that is crucial for survival and sense of well-being. Many of our social engagements revolve around rituals associated with eating” (Marcus, 2008). What we consciously and unconsciously consume has a profound impact on our body chemistry and affects how we function in the world. The purpose of this project is to increase understanding about the impact of plant-based and meat-based diets on overall well-being. In addition, this report considers the role of secondary factors related to diet and their impact on overall well-being. The survey conducted as part of this project was designed to determine whether or not vegetarians have a greater perceived sense of well-being than people who regularly eat meat.

Several types of vegetarian diets exist, including vegan (no red meat, fish, poultry, dairy, and eggs), lacto-ovo (consume milk, eggs, or both but no red meat, fish, or poultry), pescatarian (consume fish, milk, and eggs but no red meat and poultry), semi-vegetarian (eat fish, poultry and other meats less than once a week) (Fraser, 2009), fruitarian (raw vegan diets based on fruits) and raw-foodist (plant-based diet characterized by a high consumption of uncooked and unprocessed foods, i.e. fruits, vegetables, nuts and seeds) (Craig & Mangels, 2009). Even within these dietary patterns, considerable variations may exist in the extent to which animal products are excluded. While some researchers suggest that a vegetarian diet can lower the risk for many diseases (Fraser, 2009), others warn of “nutrient deficiencies common amongst vegetarians and particularly vegans” (Sabaté, 2003). Vegetarian diets have been described as being deficient in several nutrients, including protein, iron, zinc, calcium, vitamin B12 and A, n-3 fatty acids, and iodine. Numerous studies have demonstrated that the observed deficiencies are usually due to poor meal planning (Leitzmann, 2005). However, according to the American Dietetic

Association (2009), a well-balanced vegetarian diet is suitable for all stages of life, from childhood to the elderly, as well as pregnant women and athletes. A vegetarian diet that includes regular consumption of fruits and vegetables is associated with reducing the risk of many diseases, including cardiovascular disease, hypertension, type-2 diabetes, cancer, osteoporosis, renal disease, dementia, diverticular disease, gallstones, rheumatoid arthritis, stroke, cataracts, Alzheimer disease, as well as a general decline in functions associated with aging (Liu, 2003; Leitzmann, 2005). What this research demonstrates is that there are numerous factors to consider when examining the risk for disease or deficiencies amongst vegetarians, such as how meals are planned and whether there is an adequate intake of fruits and vegetables.

At the same time, research on meat-based diets demonstrates that a meat-based diet can also be deficient in certain nutrients, but such diets are more commonly identified as a risk factor for disease, which can result in having a negative effect on one's well-being (Cousens, 2010).

A meat-based diet is one-dimensional, meaning it provides exclusively one type of protein. "As it is used in standard nutritional and agricultural writings, the term meat is actually a misnomer. Meat's correct definition is muscles of animals, and is nothing but wet protein tissues" (Smil, 2002). Looking at meat in this manner, and excluding fish (also a source of protein but providing monounsaturated fatty acids which confer health benefits) from the definition of meat, leads to the conclusion that all meat protein is basically the same. This is an idea that some people debate. However, assuming that all meat proteins are the same, one can conclude that consuming a primarily meat-based diet, which is high in saturated fats, can lead to an array of health issues such as cardiovascular disease, diabetes mellitus, and some cancers (Walker, Rhubar, Pamela, Shawn, Kelling & Lawrence, 2005). These issues are particularly prevalent in the US, where people typically consume diets that are high in meat proteins and saturated fat yet

low in fruits, vegetables and whole grains (Walker et al., 2005), a pattern of eating that increases the risk of the aforementioned diseases. However, the impact of meat proteins is different in impoverished countries. For example, in many African countries where nutrient deficiencies are common, an increase in meat and dairy is likely to improve people's nutritional outcomes and overall health (Walker et al., 2005).

Well-being does not rely exclusively on diet but ultimately “what is good for a person” (Crisp, 2008). In general, well-being incorporates a holistic approach, focusing on multiple dimensions that affect quality of life, subsequently leading to a more balanced, healthier, and happier person. Dimensions of well-being are often presented graphically in the form of “well-being wheels” which are used to demonstrate the relationships between each dimension, with the premise being that for an individual to be considered “well,” he or she must actively strive to improve in each dimension (Washington State University, 2011). These dimensions include emotional, environmental, financial, intellectual, occupational, physical, social and spiritual aspects, all combining to create general health and wellness (Washington State University, 2011).

These dimensions also play a role in the etiology of positive and negative emotional states. There is mounting evidence that positive emotions co-occur with negative emotions, especially during intensely stressful periods of life (Sprangers et al., 2010). Creating a balance between these dimensions of well-being may direct a person to make choices that affect his or her diet either positively or negatively. A study done in Ireland indicates that there is broad-scale support for the impact of diet and lifestyle on mental health. At the same time, the researchers found that people had a poor understanding of food labeling and nutritional claims. The study showed that residents of Northern Ireland, where there is a high rate of reported vegetarians, are

much more likely to report positive mental outlooks than those in the Republic of Ireland, where there appear to be fewer vegetarians (National Food Survey of Ireland, 2005).

Examining the correlation between diet and well-being further, it has been shown that foods high in fat have the power to modify motivation and reward systems in the brain. It has been found that certain neuropeptides are activated during activities involving reward and pleasure. Similarly, use of cocaine and nicotine also activate these same reward centers, even with only the expectation of consumption of fatty foods (Choi, Davis, Fitzgerald, & Benoit, 2009). It has also been found that binge eating and overconsumption of fat and sugar lead to an increased number of opioid receptors in the part of the brain that modulates food intake. In other words, eating fatty and sugary foods trigger the same reward mechanisms in the brain as cocaine and nicotine (Bello et al., 2009). As a result, a person may tend to over-eat fatty and sugary foods, which could lead to a variety of health issues.

What we consume can have a significant effect on our mood, which is another dimension of well-being. “Your brain is a biochemical thinking machine, and all of the biochemical building blocks of your brain eventually are affected by what you eat. Even the genes you inherited from your parents are influenced by what you put in your mouth” (Challam, 2007). It has been found that loneliness can have a powerful effect on mood, shyness, anxiety, and self-esteem. Moreover, popular concepts such as committing acts of kindness, expressing gratitude or forgiveness, and thoughtful self-reflection can produce an increase in levels of happiness (Sprangers et al., 2010).

The food we choose to consume often paves the way for our mood and behavior (Challam, 2007). It has long been known that food alters our mood and that too much meat can lead to health problems. “It takes only 3 ounces of meat a day to maximize all of its nutritional benefits. Consumption of any more and the increased intake of saturated fat, protein, and

cholesterol will compromise your health and increase your risk of developing degenerative diseases” (Somer, 1995). By comparison, a “vegetarian diet is not likely associated with poor mood states or depression” (Beezhold, Daigle, & Johnston, 2010). It has been shown that a vegetarian diet can prevent many health problems, which in turn can impact our mood. To illustrate, persons diagnosed with heart disease who implement a vegetarian diet into their lifestyle can reap the positive benefits the diet provides, such as dramatically reducing cholesterol levels and saturated fat, thus improving or reversing the negative effects of heart disease (Campbell, 2006). Previous research has shown that the high level of meat and saturated fat consumption in the United States and other affluent countries exceeds nutritional needs and contributes to high rates of chronic diseases (Walker et al., 2005). In contrast, it has been shown that vegetarian diets have been associated with physical health benefits, most notably a low risk of mortality from ischemic heart disease (Beezhold, et al., 2010).

Research has also shown that substance use can affect moods. Regular consumption of alcohol, tobacco, or marijuana has shown to have long-term effects on mood or a sense of well being. (Lanier, Nicholson, & Duncan, 2001). Food should be nourishment to the body, mood and mind (Somer, 1995). There is widespread agreement that diet does, indeed, have an impact on both physical mental health. Furthermore, it appears that a vegetarian diet is more likely to add to an individual’s sense of well-being and general health.

Methodology

This research utilizes a composite blend of qualitative and quantitative data. To collect qualitative data, a 36–item questionnaire was created and completed by 140 students and faculty at Palm Beach State College in Boca Raton, Florida. The questions focused on eating habits, environmental factors, and self-assessments of well-being. Questionnaires were administered

over the course of one week. When completed, the surveys were compiled and sorted by gender and age. A copy of the questionnaire is included as Appendix A to this report.

Results

Out of 140 students and faculty members who took part in this questionnaire, 86% were females and 38% were males. Dietary habits were also taken into account, with 7% of participants identifying as vegetarian and 93% reporting eating meat. The data was broken down further by age groups: 1% were under the age of 18, 87% were between the ages of 18-24, 9% were between the ages of 25-30 and 3% were over 35.

On questions of well-being, vegetarians report a rate of happiness of 80%, while those who eat meat report a rate of happiness of 79%. Of those who report feeling healthy, 60% were vegetarians and 71% were meat eaters. With regards to perceived sense of well-being, meat-eaters and vegetarians report a significantly high rate (78% for meat-eaters, 60% for vegetarians). On the question of exercise, 70% of non-meat eaters report exercising while 71% of meat-eaters report exercising. When it comes to reported mood, vegetarians found it harder to stay in a good mood (30%) than meat-eaters (17%). On questions of sleep, meat-eaters (34%) and non-meat eaters (30%) report difficulty falling asleep or maintaining sleep throughout the night. Concerning hours of sleep, 43% of meat-eaters receive 5-6 hours, while 36.5% report receiving 7-8 hours of sleep. In contrast, 40% of vegetarians receive 5-6 hours of sleep, while 50% receive 7-8 hours. When it comes to quality of sleep, 65% of meat-eaters report experiencing good sleep, whereas 70% of vegetarians report experiencing good sleep.

There are some secondary factors to consider as well. Meat-eaters consume more alcohol (62%) than vegetarians (50%). The majority of both meat-eaters and vegetarians report that they do not smoke cigarettes (87% for meat-eaters, 80% of non-meat eaters). Of those who report

smoking marijuana, 35% were meat-eaters, and 40% were vegetarians. With regard to reported mental or emotional distress, 36% of meat-eaters have experienced symptoms of depression, 55% have experienced anxiety, 18% have experienced panic attacks, 49% have experienced low self-esteem, and 22% do not or have not experienced any symptoms of mental or emotional difficulty. Of those vegetarians who reported mental or emotional distress, 60% have experienced symptoms of depression, 90% have experienced anxiety, 90% have experienced panic-attacks, 50% have experienced low self-esteem, and 0% do not or have not experienced any symptoms of mental or emotional difficulty.

Discussion

This study examined whether vegetarian diets among college students have a positive effect on overall health and to explore if eating meat on a regular basis has a negative impact on overall health. Regardless of one's diet, the results show that one's overall health depends on the individual, even though there are similarities between the two dietary groups. With respect to diet impacting overall sense of well-being, 100% of vegetarians feel their diet impacts their overall sense of well-being. On the other hand, 71% of meat-eaters feel their diet impacts their overall sense of well-being. This shows that vegetarians feel that their diet impacts their sense of well-being more than it actually does, based on their responses. Specifically, while impacts of diet on well-being scores were higher in vegetarians, they also reported lower rates of subjective well-being. The vegetarians in this survey reported significantly more negative emotions than the omnivores, as measured by the mood scales. However, on reported measures of happiness there was no statistically significant difference between meat-eaters and vegetarians. Similarly, there was also a lack of statistical significance on exercise; this could be due to the sampling size.

Some of the data were surprising; in some of the data there were unexpected or inconsistent results. It would be expected to find that vegetarians have a greater sense of well-being since some choose this lifestyle for ethical reasons such as guilt over the slaughter of animals, leading to an increased sense of well being. However, a lower sense of well-being may indicate that vegetarians choose this lifestyle for reasons other than ethical considerations. On the other hand, a higher percentage of vegetarians report regular marijuana use, which could lead to depression caused by a chemical imbalance in the brain. However, because most participants in the study were meat eaters, fewer vegetarians were included in the sample. Further exploration with a larger sample base is needed to explain the inconsistent results.

Even though research suggests that vegetarians have a subjectively lower rate of well-being than that of meat-eaters, what was found amongst the incongruities is that the effect of diet on an individual depends on the uniqueness of the person. The fact that 30% of vegetarians reported having a hard time maintaining a good mood, but only 17% of meat eaters have a hard time maintaining a good mood suggests that vegetarians may be more aware of mood and, therefore, more sensitive to mood changes.

The hypothesis of vegetarians having a greater perceived sense of well-being than people who regularly eat meat does not appear to receive strong support in this study. Perhaps these incongruities can also be explained by the relatively small sample size of those surveyed. It is likely that, with a more substantial group of vegetarians, the results might be more along the lines of what much of the research shows. In final consideration, this interrelationship between health, mood, and diet on sense of well-being deserves further study. Also, future studies may want to consider introspection and thoughtfulness amongst vegetarians as compared to meat

eaters. Because vegetarians may worry more about the feeling of other creatures they may tend to be more introspective.

Appendix A

Questionnaire

My name is Andrew Gerren. I am an honors student at Palm Beach State College, conducting a survey as part of a research project this semester.

The survey involves answering some general demographic questions and some questions about your attitudes toward diet and overall well-being. The survey should take about 5 minutes to complete. Your participation is completely voluntary, and your responses will be anonymous. You may skip any questions you do not wish to answer. There are no consequences if you decide not to complete the survey.

This project is supervised by the course instructor Lawrence Siegel. If you have any questions, please contact him at siegell@palmbeachstate.edu

Sex:

Male Female

Age:

Under 18

18 - 24

25 - 30

31 - 35

Over 35

Do you exercise?

Yes No

If yes, how many times per week?

- 1x per week 2x per week
- 3x per week More than 3x per weekly

Do you eat meat on a regular basis?

- Yes No

Do you consider yourself a vegetarian?

- Yes No

If yes, how would you describe the type?

- Vegan
- Octo-lovo
- Pescetarian
- Fruitarian
- Raw-foodist
- Semi- vegetarian (*includes chicken*)

Do you smoke cigarettes?

- Yes No

If yes, how much? _____

Do you consume alcohol?

- Yes No

On average, when do you drink and how much? _____

Do you smoke marijuana?

Yes No

If yes, how often? _____

Do you use any other illegal substances for recreation puposes?

Yes No

Do you feel like your life is stressful? How stressful?

(1 - mellow, 5 - very stressed)

1 2 3 4 5

Have you ever experienced: *(click all that apply)*

Depression Anxiety

Panic attacks Low self-esteem

Don't experience any

On a scale of 1 to 5 how would you rate your overall sense of well being?

(1 - not so great, 5 - a great sense of well being)

1 2 3 4 5

Rate your overall level of health:

(1 - unhealthy, 5 - very healthy)

1 2 3 4 5

Rate your overall level of happiness:

(1 - unhappy, 5 - very happy)

1 2 3 4 5

Do you have high blood pressure?

Yes No

Do you feel good about your weight?

Yes No

Have you experienced elevated cholesterol?

Yes No

Do you visit a physician regularly?

Yes No

Do you include fast food in your diet?

Yes No

If yes, how often?

1x per week

2x per week

More than twice

Do you often feel fatigued or lethargic?

Yes No

Do you catch colds or the flu easily?

Yes No

Do you find it hard to stay in a good mood?

Yes No

Do you have pain in your muscles and joints?

Yes No

If yes, how long have you experienced this? _____

Do you have difficulty falling asleep or maintaining sleep throughout the night?

Yes No

On average, how many hours of sleep do you get at night?

1 – 2 hours 3 – 4 hours

5 – 6 hours 7-8 hours

8 or more hours

Rate your overall quality of sleep:

(1 – poor, 5 – great)

1 2 3 4 5

Do you ever feel bloated, sluggish or lethargic after a meal?

Yes No

If yes, how often do you feel this way? _____

In general, how much do you feel your diet impacts your overall sense of well-being?

(1 – not at all, 5 – strongly influences)

1 2 3 4 5

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