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Women and Eating: Cognitive Dissonance versus Self-Perception Theory

Brennan Atherton, Karen Call, and Kathryn Huff



Eating attitudes and eating beliefs in females might be explained by cognitive dissonance (conforming beliefs to match behaviors) or self-perception theory (beliefs inferred by behaviors). A sample of 129 female undergraduates, divided into three groups, were taken to see if the food they ate affected their attitude towards food or body image. A healthy food group consisted of low calorie foods, a junk food group consisted of high calorie foods, and a control group was given no food. Participants completed the Eating Attitudes Test (EAT) and Body Image Scale (BIS). There were no differences between groups on BIS ($p=0.60$), suggesting no differences in body image perception. The healthy food group scored significantly lower on the EAT ($p<0.05$) than the junk food and control groups, suggesting that cognitive dissonance is a possible explanation for the discrepancy. This is due to lower scores on the EAT, which are considered to be more healthy.

Knowledge about what it means to have healthy eating behaviors is more widespread than ever before, and is taught early in elementary schools (Blom-Hoffman, Kelleher, Power, & Leff, 2004). The internet has also become one way of spreading knowledge of healthy eating through websites, such as mypyramid.gov (<http://www.mypyramid.gov>). Since health information is so widespread, unhealthy eating choices can be puzzling. One study suggested that overweight and obese women may continue their eating behavior, due to them enjoying food (Barberia, Attree, & Todd, 2008). Additionally, eating disorders, such as anorexia and bulimia nervosa show a cause for concern (Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011). Although there is no conclusive evidence regarding dysfunctions in eating, two possible theories for this inconsistency are self-perception theory and cognitive dissonance theory.

Self-perception theory is the idea that a person assumes their attitudes are based on their actions (Bem, 1967). Hence, this theory suggests that women who eat poorly would infer that they continue to eat unhealthy food because they enjoyed it. This is consistent with the

study of Barberia, Attree, & Todd (2008). Another study available on self-perception theory shows that people tend to make decisions about what foods they eat based on taste (Elfhag & Erlanson-Albertsson, 2006), and not based on societal attitudes regarding healthy food (Powell & Amsbary, 2004). In regards to women and eating behavior, the research in the field is lacking.

Cognitive dissonance occurs when a person's behaviors are not aligned with their beliefs (Festinger, 1957). The dissonance that occurs may bring them to change their beliefs, and to make them in alignment with their behaviors (Festinger & Carlsmith, 1959). One study showed that Irish females have existing beliefs about what is healthy eating. Participants in the study reported feeling more positive feelings when they followed the dietary guidelines accepted by society (Hearty, McCarthy, Kearney, & Gibney, 2007). Societal pressures can also cause cognitive dissonance in women. Researchers found that females who failed to meet societal expectations regarding thinness changed their attitudes about what was healthy eating (Greenfeld, Quinlan, Harding, Glass, & Bliss, 1987). In a similar study, researchers found that females were more likely to indulge in particular foods when they believed that the foods were lower in calories, when compared to other higher calorie foods (Gonzales & Vitousek, 2006).

Body image is also an important aspect, related to eating behavior. In this study, there were women who ate either a banana or a donut. Tension scores increased for those women who ate a donut, but decreased for those that ate a banana. Additionally, body image was affected by what food the women ate (Hayes, D'Anci, & Kanarek, 2011).

Because of the prevalence of unhealthy eating behaviors in our society, it is important to know whether cognitive dissonance or self-perception theory best explains the discrepancy between an individual's eating beliefs and attitudes, as well as a person's eating behaviors. No research

has been done directly on this topic directly, however, there is research to support cognitive dissonance over self-perception theory in general (Ross, 1973; Woodyard, 1972; Green, 1974). Additionally, we believe that there is more preliminary research to support cognitive dissonance over self-perception theory when it comes to eating behavior, as previously mentioned. It is hypothesized that the discrepancy between eating attitudes and beliefs would be better explained by cognitive dissonance theory than by self-perception theory. A secondary hypothesis includes that women will have a lower body image if they eat unhealthy food, rather than healthy food.

Method

Design

This study consisted of three groups—two experimental and one control. Each group had a minimum of 30 randomly assigned participants. The dependent variables were the participants' body images and perceptions of food. The independent variable was the kind of food given to the participants in the two experimental groups—whether the participants were given junk food (i.e. fruity candies, cookies, and M&Ms, etc.) or healthy food (i.e. fruits and vegetables).

Participants

Participants were selected from college age females, using a convenience sample. Fliers were given in introductory psychology courses on the campus of Brigham Young University; also, fliers were distributed to various undergraduate psychology classes, and females were invited outside of the testing classrooms before the testing was to take place. There were 90 participants in the study that ranged in age from 18-25. The average age of the women was between 20 and 21 years of age. Most were white females from a middle class economic status. Institutional Review Board (IRB) approval was obtained prior to beginning the study. Each of the participants also signed an informed consent form prior to participating.

Measures

The students were each given the Eating Attitudes Test (EAT), which was a questionnaire to test the attitudes of women when it comes to eating. Lower scores on the EAT were considered more healthy. The EAT assessed dieting behaviors, thoughts about bulimia, food preoccupation, self-control, and perceived pressure from others to gain weight. Higher scores indicated a clinical eating disorder

(Ocker & Lamb, Jensen, & Zhang, 2007). The EAT was used in assessing those with eating disorders, such as anorexia and bulimia nervosa (Meadows, Palmer, Newball, & Kenrick, 1986). The EAT was used to diagnose each participant's attitudes in regards to eating behavior. Examples of test items included questions about dieting and guilt about over-eating (Garner & Garfinkel, 1979). Participants were asked to rate the statements on a Likert scale, from 1 (not very likely) and 5 (very likely). The validity and reliability of the EAT were established by Ocker et al. (2007), who calculated a confirmatory factor analysis (CFA) of 0.91. A Body Image Scale (BIS) was given, where participants were asked to rate their body image on a scale of 1-10 with 1 being "not at all satisfied" and 10 being "highly satisfied." Each EAT was scored by the administrators, as well as the BIS. Four demographics questions were asked of the participants: age, year in school, height, and weight. Food pyramid questions were administered to test the participants' knowledge of the food pyramid questions were given, as well. These assessed how well they knew about the food pyramid from mypyramid.gov.

Procedures

After the consent form was signed by the participants, the study was administered to 90 female college students that were conveniently assigned to one of three different groups. The control group was brought into a room and given the EAT, the BIS, demographic questions, and food pyramid questions. After filling out the forms, the control group participants were given a debriefing and a snack as compensation for participating.

The first experimental group was brought into the room and each participant was given a variety of junk food to choose from and eat before the experiment started. After this, the EAT, BIS, demographic questions, and food pyramid questions were administered. After completing the measures, the participants were debriefed.

The second experimental group was given healthy food to eat. After eating their food, the participants of this group were given the EAT, the BIS, the demographic questions, and the food pyramid questions. They were asked to fill out the surveys and then they were debriefed in the same manner as the first two groups.

Results

Analytic Strategy

Data was analyzed using both inferential and descriptive statistics. The means and standard deviations of each groups' demographics were used to determine whether or not there were any differences between groups. Analyses of variance (ANOVA) on the dependent variables were conducted using the General Linear Model (GLM) in SPSS.

Data Quality and Manipulations Check

There were no significant demographic differences between the three groups, when using an ANOVA; the groups were sufficiently randomized. See Appendix A.

The dependent variables were roughly normally distributed. See Appendix A. Results on the EAT were negatively skewed. See Appendix C. Results on the BIS were slightly positively skewed. See Appendix C. However, the skewness was slight enough that the analyses were not affected. See Appendix A.

The manipulation check for this experiment was a series of questions given at the end of the EAT. Most participants in both experimental groups responded that they were not affected. See Appendix A.

Findings

The authors first compared the three groups on the EAT. As can be seen in Table 1 of Appendix A, there was no difference between the junk food group ($M = 110.85$) and the control group ($M = 110.76$). However, the difference between the control group and the healthy food group ($M = 103.15$) approached significance ($p = 0.086$). The authors noticed that some participants in the experimental groups did not take the food they were offered, which was the experimental manipulation. Seventy-five percent of participants in the healthy food group took the food offered, but only 51.9% of the participants in the junk food group accepted the offered food (the difference is statistically significant with $p < 0.05$). The authors controlled for whether or not the participants in the experimental groups ate the food they were offered, and the difference between the groups were significant ($p < 0.05$). This meant that, on average, participants in the healthy food group scored lower on the EAT than the control group. Hence, participants in the healthy food group had healthier eating attitudes than the participants in the control group.

A secondary hypothesis was that those who ate the junk food would have a lower score on the BIS than those in the control group, and that those who ate the healthy food would have a higher score on the BIS. No difference between the groups was found. As evidenced in Table 1, all three groups had a relatively similar score on the BIS ($p = 0.60$). This hypothesis that eating junk food or healthy food would affect how the participants viewed their bodies was not supported.

Only 10.9% answered one or more of the food pyramid questions incorrectly, with only six missing more than one and just three people incorrectly answering all four questions. See Appendix B. There were no significant differences between groups ($p = .382$). This infers that nearly 90% of the women in this study had a high knowledge of what healthy eating was. Therefore, they could not infer healthy or unhealthy eating attitudes, based off of their behavior.

Discussion

The authors hypothesized that eating different kinds of food would have an effect on the attitudes and beliefs that females have about food and about eating. The idea was that any difference the authors found would be explained by cognitive dissonance theory. The difference the authors found between the scores on the EAT of the control group and the healthy food group suggest that eating healthy food does indeed lead to a difference in attitudes about eating and about food in general. The differences could not be explained by self-perception theory, due to the preexisting knowledge of the food pyramid questions.

Most participants seemed to have preexisting ideas and attitudes about eating, based on their correct answers to the food pyramid questions. Therefore, self-perception theory could not be a correct explanation for the test results. Instead, cognitive dissonance provides a more feasible explanation for why a difference was found between the groups. The authors' experimental manipulation led to cognitive dissonance within the participants, who then changed their attitudes about food and about eating. This was made evident when comparing the healthy food group with the other two groups. Why else would the attitudes change to a significant level? We purport that the healthy food group changed their attitudes to align with their healthy eating behavior. What is still not understood is why eating the junk food did not shift women's EAT scores significantly higher than the control. They stayed

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relatively the same.

More people chose to indulge in the healthy food than the junk food ($p < 0.05$). See Appendix A. This is similar to the results of the Gonzales and Vitousek (2006) study, which found that when females believed a food had a lower calorie value, they were more likely to indulge in that food. Based on this evidence, it seems that people are aware of their need to eat healthier foods; however, an implication of the fact that there are still a lot of people eating unhealthily is that this knowledge needs to become more widespread than it is.

Another implication of more females eating the healthy food than the junk food is that if females knew the calories healthy food possessed, they would be more likely to indulge in healthy food, rather than in junk food. In addition, the caloric value of healthy food is not something that is readily accessible in society, due to there not being nutritional labels placed on healthy food in some instances. Also, the availability of junk food is more conveniently accessible than the availability of healthy food. Due to junk food being cheaper than healthy food, females seem to be encouraged to eat junk food. Healthy food should be made more available and cheaper than junk food, encouraging even more women to eat healthy food rather than junk food.

Limitations

A potential limitation is that some females may have wanted to present themselves in a certain way, and some may have answered the questions based on what they thought the authors wanted. The authors had no way to control for this, and it possibly could have affected the face validity of the study. Another limitation is that not all participants accepted the food that they were offered, stating that they were not hungry or that they did not like the food offered. In the healthy food group, 25% of the participants did not accept the food offered. In the junk food group, 48.1% of the participants refused the offered food. This limited the impact of the experimental manipulation on the dependent variables.

Future Directions

Future research in this area of study should take into account the limitations of the authors' study. The specific question of how a person's eating attitudes would change immediately after eating a certain kind of food was not answered by the authors' cross-sectional study. Instead of conducting a cross-sectional study, researchers could follow participants and test them before and after eating different kinds of food. Researchers could also conduct a study incorporating a more broad population

of females than just females at Brigham Young University, which would make the results more generalized. Future researchers could conduct the study at a consistent time of day, such as lunchtime or dinnertime, when participants would be more likely to accept food because of their hunger. Researchers could also compare results on tests given at lunch or dinner. This would show results at other times of the day when participants would not normally eat. In this way, any effects of hunger on eating behaviors and attitudes could be shown.

Appendix A

Demographics and Variables

Table 1

Demographics and Independent Variables.

Demographics	Experimental Group #1 (Health food)	Experimental Group #2 (Junk food)	Control Group	p value
Age	20.14 (4.64)	20.28 (2.34)	21.12 (5.12)	.528
Year (% freshmen)	57.5%	35.2%	24.2%	.119
Height (inches)	65.49 (2.24)	65.86 (2.20)	65.18 (3.46)	.492
Weight (pounds)	136.75 (23.47)	138.47 (21.59)	137.97 (19.48)	.929
Affected by eating food (% Yes)	27.5%	20.8%		0.449
% Ate food	75%	51.9%		0.022
Dependent variables				
EAT	103.15 (13.09)	110.85 (19.66)	110.76 (19.43)	.021
BIS* (1-10)	6.73 (2.11)	6.58 (1.85)	6.24 (2.31)	.60

*Body Image Scale

Appendix B

Incorrect Responses

Table 1

Number and percent of participants who incorrectly answered questions about the food pyramid used to measure for self-perception theory.

	Missed 0	Missed 1	Missed 2	Missed 3	Missed 4
Group 1 (healthy)	34 (82.9%)	5 (12.2%)	1 (2.4%)	0 (0%)	1 (2.4%)
Group 2 (junk)	50 (90.9%)	3 (5.5%)	1 (1.8%)	0 (0%)	1 (1.8%)
Group 3 (control)	31 (93.9%)	0 (0%)	0 (0%)	1 (3.0%)	1 (3.0%)
Total	115 (89.1%)	8 (6.2%)	2 (1.6%)	1 (0.8%)	3 (2.3%)

Appendix C

Figure 1
EAT Means by Group

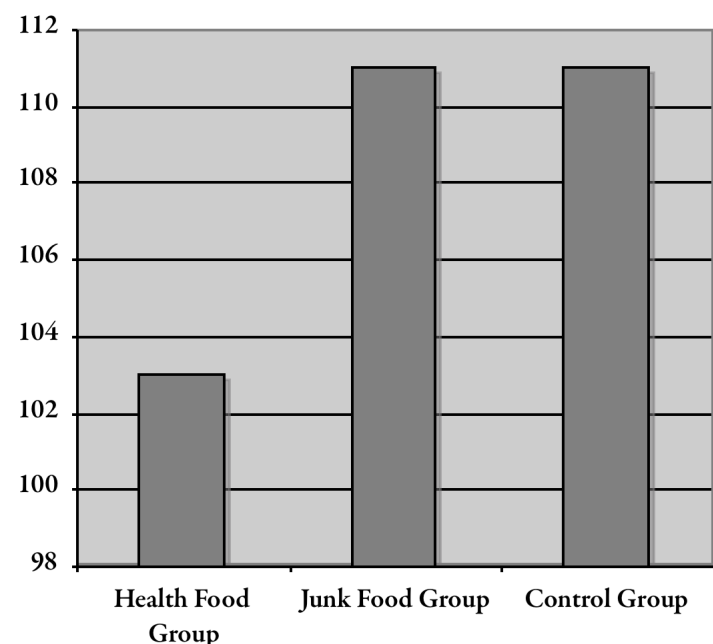
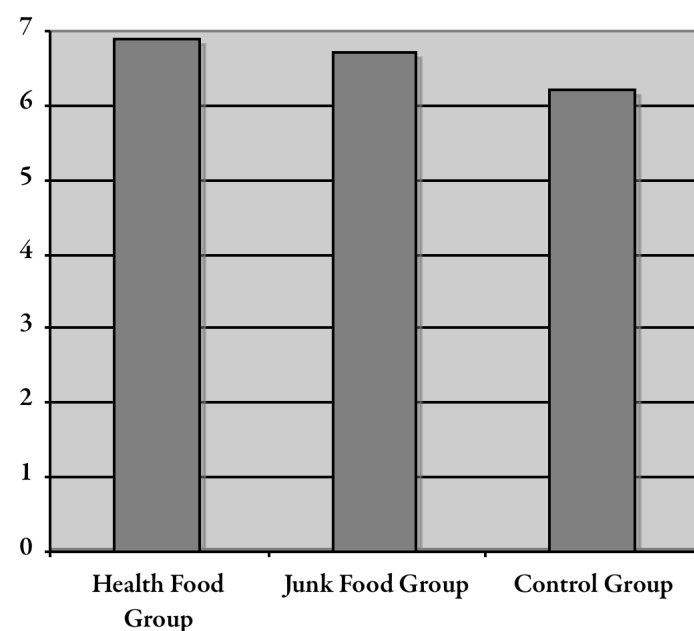


Figure 2
BIS Means by Groups



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