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The Role of Food Perceptions in Eating Disorder Behavior

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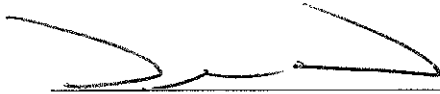
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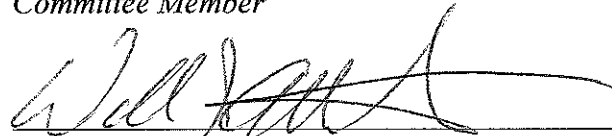
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Abstract

Previous studies have mostly ignored how food perceptions play a role in eating disorder behavior. The current study examined how the severity of an eating disorder is related to food perceptions. Participants completed a survey containing multiple measures and were given scores for each. A moderately strong positive correlation was found between the severity of an eating disorder and food perceptions. This study emphasizes evaluating these complex disorders from multiple perspectives and highlights the importance of taking cognitive factors into consideration when researching or treating an eating disorder.

The Role of Food Perceptions in Eating Disorder Behavior

Understanding eating disorders (EDs) is a task that requires a multidimensional perspective and approach. Factors like family life and relations (Strober & Humphrey, 1987; Horesh, Sommerfield, Wolf, Zubery, & Zalsman, 2014), genes (Strober & Humphrey, 1987), and the media (Becker, Burwell, Gilman, Herzog, & Hamburg, 2002) all can have a role in the development of a given disorder. There are numerous other risk factors that are related to specific disorders, such as perfectionism in anorexia nervosa (AN; Wade & Tiggemann, 2013; Hilbert, Pike, Goldschmidt, Wilfley, Fairburn, Dohm, Walsh, & Weissman, 2014) and overeating habits held by the family in binge eating disorder (BED; Hilbert et al., 2014). Body dissatisfaction is another commonly noted factor related to EDs (Wade & Tiggemann, 2013; Stice, Marti, & Durant, 2011). Additionally, anxiety is routinely associated with EDs (Lavender, Young, Wonderlich, Crosby, Engel, Mitchell, Crow, Peterson, & Grange 2013).

Recent studies have taken different approaches on how to study factors that surround and, potentially, influence the development of these disorders. For example, Horesh and colleagues (2014) cited numerous studies indicating that much blame on the development of eating disorders was once placed on the mother. Prior to describing their own study, the authors referenced a few recent studies that discussed the effects the father's behavior has on the development in eating disorders in adolescent girls. Though the authors seemingly indicate that only recent research has focused on the father, an older study done by Strober and Humphrey (1987) described findings on the father's role in ED development, noting "fathers were commonly described as emotionally constricted, obsessional, moody, withdrawn, passive, and ineffectual" (p. 654). This is in line with the findings of Horesh et al. (2014), which indicate that negatively held opinions of the father were associated with increases in depression, rates of food restraint, and concerns about one's appearance. Based on the descriptions of Horesh et al. (2014),

this particular study was an exception to the emphasis on the mother found in the research of that time.

Modern social media provides an interesting element in the realm of social factors that affect EDs. A recent study sought to investigate the relationship between Facebook use and potentially disordered eating (Mabe, Forney, & Keel, 2014). A positive association was found between Facebook use and being concerned about weight and appearance when compared to different internet-based activities. The authors noted that understanding the mechanisms that Facebook utilizes is of great importance to interpreting their findings. The Facebook “like” system, for example, can provide a metric by which to measure one’s popularity or as a way to judge how attractive one’s “friends” find oneself. In addition, it seems self-evident that most of the photographs that are found while browsing Facebook will be selected because they are appealing. If this is indeed the case, a given user will be seeing a body of images that does not truly represent what their peers look like, but might interpret this unrepresentative sample as what their “friends” look like on an average day. This could potentially increase peer-to-peer competition with regard to appearance and, therefore, put people at greater risk for disordered eating behavior.

Focusing more on individual factors, rather than environmental variables, might also yield promising findings, particularly with regard to attitudes held by specific individuals with an ED. Contrary to their expectation of finding a difference between an AN group and a control group in how individuals perceived their own bodies, Waldman, Loomes, Mountford, and Tchanturia (2013) discovered that it is much more likely that “cognitive affect biases” (p.1) are to blame for the dissimilarity. This indicates that attitudes have a greater effect on distortions of self-perceived body image than some kind of deficiency in the perceptual systems of individuals with AN. The attitudes that an individual has towards eating also seems to have a relationship

with ED behavior (Alvarenga, Koritar, Piscoilaro, Mancini, Cordás, & Scagliusi, 2014). Those with AN and bulimia nervosa (BN) were found to have attitudes that were more dysfunctional than the attitudes of patients with BED and obesity (OBS).

Assessment of EDs proves to be a complex and challenging issue. Surgenor and Maguire (2013) provided an in-depth discussion regarding the specific parts of the assessment process and the problems one might face each step of the way. They focused specifically on AN in their review. They cited numerous studies that indicated a process of progressively changing specialists, starting with their general care doctor and, potentially, making their way up to specialist care. Receiving specialist care was noted to be less frequent, however, due to fewer specialists being available. An additional challenge the authors mentioned is the inexperience general physicians might have when dealing with this problem, as well as any efforts their patients might make to keep their symptoms hidden. Long wait-lists for ED services might also deter people from seeking help.

There are also issues regarding patients' understanding of the problem and how that relates to their willingness to seek help. In some cases, AN patients seek to stop having the disorder but desire to keep themselves at their current weight. In many cases, there might be a back-and-forth shift from wanting to deal with the issue and considering it to not be a real issue. Measures of motivation are taken into consideration as well but there is some question as to whether or not this is a valid approach to consider. On the other end, it is noted that the clinicians that patients seek help from might in fact be causing them problems. Instances of lack of empathy, prejudices about AN, and lack of training among clinicians are cited as causes of issues for clients. Drop-out cases in treatment also cause obvious problems for the efficacy of any efforts to help a given patient, and men suffering from the condition are notably less likely to be diagnosed than their female counterparts (Surgenor & Maguire, 2013).

Tools used to measure AN symptomology are also varied, and although they are somewhat limited in their utility, they can be tailored to fit specific situations better than other measures. Self-report measures and interviews are both used as well, but there is debate about which is the better method. Self-report scales can range in efficacy from less specific surveys a general practitioner might use to highly specific and detailed, robust surveys used by an ED specialist. Interviews appear to be used more by specialists than primary care physicians. Surgenor and Maguire (2013) noted that numerous issues can affect the results of a given measure, most notably the patient's understanding of the situation. Thinking that the disorder is not a serious problem or alterations in responses due to fear of judgment can bias results. The authors also mentioned that most diagnoses can be made without the need of tests, and instead that "the more useful place of standardised psychometric tools is to screen, assess symptom change and research" (p. 5).

Just as the assessment of EDs can be difficult, so too can be the treatment. It should be noted that the following studies are focused on AN only. Hart, Franklin, Russell, and Abraham (2013) conducted a study hoping to find the most effective feeding methods for the treatment of AN. The main methods that they reviewed included: only food, high-energy liquid supplements, nasogastric feeding, and parenteral (intravenous) nutrition. Due to the nature of the literature available to them, the authors were not able to complete the meta-analysis they originally planned and therefore were unable to conclude which feeding method was most effective. However, they provided a table with the pros and cons of the aforementioned feeding techniques and both the nasogastric feeding and parenteral nutrition had a long list of negatives, particularly the nasogastric feeding. Although they both had benefits, it does not appear that they are particularly well-liked techniques. The authors concluded that there was insufficient evidence to determine which method was the most effective and called for an investigation to determine this

in a controlled setting.

Clausen and Jones (2014) searched the literature to study the involuntary treatment of AN. Some techniques that this could entail include “forced feeding, restraint or referral to a locked ward” (p. 1). There were not many studies that were able to be included in the review, indicating that there needs to be further research in the area. However, their limited, and in some cases, incompatible, studies indicated that involuntary treatment appears to be pursued in cases in which the disorder has become very complex, rather than simply severe.

Dahlgren and Rø (2014) conducted an investigation into a potential form of treatment for AN – cognitive remediation therapy (CRT). This technique is used to treat issues concerning central coherence and cognitive flexibility. Application to AN is a new advancement and has some promise. There have been few studies conducted on CRT with regard to AN specifically, but recently several randomized controlled trials have shown some initial potential, though on an individual basis rather than across the board (Dahlgren & Rø, 2014). In general, however, the trials seem to indicate that CRT can strengthen current ongoing treatment and reduce dropout rates of treatment programs.

Continuing with the theme of moving forward with advancements in understanding the intricacies of EDs, the recently published DSM-5 (American Psychiatric Association, 2013) has some useful alterations in the designated criteria for individual EDs. The revision changed the criteria by which AN and BN are categorized. AN no longer requires amenorrhea and BN now requires a binge/purge episode once a week for a minimum of three months, compared to the twice a week requirement held by the DSM-IV-TR (American Psychiatric Association, 2000). The restricting subtype of AN (ANR) and the binge/purge subtype of AN (ANBP) have remained the same in their classifications and criteria requirements. BED has been made into its own diagnosis with specific criteria and descriptions as well.

Although there is much progress being made towards better understanding EDs, there is still much room for improvement and further study. The study of food perceptions might provide a unique look into the way EDs are maintained and possibly give insight into treatment options that are more effective than those that are currently available. Alvarenga et al. (2014) studied the relationship between various EDs and attitudes individuals held towards food and Coelho, Wilson, Winslade, Thaler, Israel, and Steiger (2013) investigated how individuals evaluated their thoughts about food, in part, by measuring thought-shape fusion (TSF). TSF is a “cognitive distortion associated with the over-evaluation of the importance of thoughts about food” (p. 302; e.g. I will gain calories just by thinking about eating food, even if I don’t actually eat). Their results indicated that ANBP patients were more likely to have TSF than were ANR or BN patients. Midkiff and Bernstein (1985) studied what kind of learned food aversions (LFA) are common in humans, finding that foods eaten as a source of protein are particularly susceptible to the formation of these aversions.

To my knowledge, there is little research studying the relationships between an individual and the individual’s cooking behavior, cooking behavior perceptions, calorie counting behavior, and calorie counting behavior perceptions. Investigating the relationship between cooking (e.g., cooking regularly or not) and calorie counting (e.g., I count the calories in the food I eat) behavior might provide useful insights to the nature of EDs in general, but analyzing subjective perceptions of cooking (e.g., It’s necessary for me to precisely measure how much of each ingredient I put into my food) and calorie counting (e.g., It’s necessary for me to count the calories in the foods I eat) could further the understanding of mental processes found in EDs. Additionally, investigating opinions on cooking and calorie counting behaviors in others (e.g., It’s necessary for other people to count the calories in the foods they eat) might shed some light on social comparisons made by those with EDs. In accordance with previous work, I propose

that perceptions of food have an underlying role in the manifestations of eating disorder behavior. More specifically, I hypothesize that there are positive relationships between the severity of an eating disorder and disordered eating attitudes, thought-shape fusion, and the likelihood for developing a learned food aversion. Additionally, I hypothesize that there is a positive relationship between the severity of an eating disorder and cooking behavior perceptions, calorie counting behaviors, and calorie counting behavior perceptions. I hypothesize that there will be a negative relationship between the severity of an eating disorder and cooking behaviors.

Method

Participants

One hundred and twenty six individuals (30 male, 96 female) participated in this online survey. After receiving IRB approval, the subject pool was collected from undergraduate psychology students at Northern Kentucky University. The mean participant age was 21.14. The participant pool was 84.9% Caucasian, 8.7% African-American, 4.0% Multiracial, 1.6% Asian or Pacific Islander, and 0.8% Latino. The participant sample was 68.3% Freshmen, 17.5% Sophomores, 10.3% Juniors, and 4.0% Seniors.

Materials

The survey taken in this study was a combination of several measures, some found in previous research and some designed specifically for this study.

The Eating Attitudes Test (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982) is a 26-item scale that measure symptoms and concerns associated with eating disorders. A 6-point Likert scale is used, ranging with anchors of *Never* and *Always*. The EAT-26 has been reproduced with permission. This measure was the scale used to determine the severity of an individual's eating disorder behavior.

The Disordered Eating Attitudes Scale (DEAS; Alvarenga, Scagliusi, & Philippi, 2010) is a scale with 25 items that measures eating attitudes. It has five subscales. 1) Relationship with food, 2) Concerns about eating and body weight gain, 3) Restrictive and compensatory practices, 4) Feelings toward eating, and 5) Idea of normal eating. Scores can range from 37-185, where a higher score indicates a more disordered attitude.

The Trait Thought Shape Fusion Scale: Short Version (TSF Scale; Coelho, Baeyens, Purdon, Shafran, Roulin, & Bouvard, 2013) is a scale with 18 items that measures general tendencies of TSF. Responses are coded on a 5-point Likert scale (0-5) anchored from *Not at All* to *Totally/Always*. The first 14 items “provide a total score for TSF concept-related domains” (Coelho et al., 2013, p. 304). and the last 4 items measure TSF-associated thoughts that are clinically relevant.

The Learned Food Aversion Scale (LFAS) is a brief 3-question scale based on the questions used in the study by Midkiff and Bernstein (1985). It was used to assess what type of food aversion(s), if any, exist in the participants. This scale was modified for use in this study.

We generated a number of items to measure cooking behavior and cooking behavior perceptions (14), and calorie counting behavior and calorie counting behavior perceptions (16).

Procedure

All participants completed the survey through Sona, an online research management system. The survey was hosted on SurveyMonkey, which was then linked to Sona. All responses in this study were collected confidentially. Participants who took part in this study received research credits for Sona, which often count towards course credit in their psychology courses. Participants were given these credits whether they completed the survey or not.

Scores for each individual scale were calculated. The score for the LFA measure was the total number of food aversions an individual had. An exploratory factor analysis was conducted

for the CBPS and CalCBPS measures. The results suggested 2 main factors of interest, named the Limiting Behaviors and Perceptions factor and the Comfort Behaviors and Perceptions factor. Each factor's total score was calculated by summing the scores of the items that primarily loaded on either factor.

Results

In the first hypothesis, we expected there to be a positive correlation between the severity of eating disorders and scores on the DEAS scale. As predicted, there was a positive correlation between EAT-26 scores and DEAS scores, $r(126) = .825, p < .001$.

In the second hypothesis, we expected there to be a positive correlation between the severity of eating disorders and scores on the TSF scale. As predicted, there was a positive correlation between EAT-26 scores and TSF scores, $r(126) = .707, p < .001$.

In the third hypothesis, we expected there to be a positive correlation between the severity of eating disorders and total number of Learned Food Aversions. Contrary to our expectations, there was not a significant correlation between EAT-26 scores and the total number of Learned Food Aversions, $r(89) = .027, p = .802$.

With regard to the scales created for this study, here was a positive correlation between EAT-26 scores and Limiting Behavior and Perceptions scores, $r(126) = .617, p < .001$, but there was not a significant correlation between EAT-26 scores and Comfort Behavior and Perceptions scores, $r(126) = -.051, p = .573$.

Discussion

The current study has found a correlation between the severity of an eating disorder, as measured by the EAT-26, and how an individual perceives food, as measured by the items in the Limiting Behaviors and Perceptions factor. Despite the novelty of the generated items used in this study, strong correlations between the EAT-26 scores and scores on the DEAS and TSF

measures help to bolster the results found with the new factor. The findings of the current study may have potentially important theoretical implications and practical applications.

The academic significance of this study expands into several domains. Conducting research in areas that have been previously unexplored certainly helps to build an understanding of eating disorders and the way they operate. Perhaps more significantly, studies such as this help to raise questions about what areas still need to be investigated, and what factors need to be considered in future research. As our perspective continues to grow and expand, we will have a deeper and more meaningful understanding of the underlying mechanisms of these disorders as well as the observable behaviors. In the area of food perceptions, research is scarce and this study helps to fill in the gap. The findings of the current study indicate that these perceptions are important to take into consideration, both in clinical practice and research. Furthermore, this study can serve as inspiration for future research in the area and help to discover more about the role that food perceptions play in eating disorders.

The findings of the present study translate quite naturally into clinical practice. Taking into consideration how a given patient perceives food and interacts with it, by way of cooking and calorie counting, could give the practitioner a more complete understanding of their client's problem. This obviously would lead to more successful treatment of the disorder, something that was particularly significant when considering the design of this study. Getting a better idea of what a client is experiencing could also combat some of the assessment challenges outlined by Sugernor and Maguire (2013), particularly with respect to the issue of clinicians not believing the disorder is a legitimate issue. If they are able to understand the thought processes of an individual with an eating disorder, this could lead to more empathic responses and understanding of what the client is going through.

Extrapolating meaning from this study needs to be done with caution, however, as several

factors need to be taken into consideration when looking at the results. To begin, new items that have been previously untested were used as a measure for food perceptions. Future research could determine if these items are truly a good measure, but at present there is no way to determine if the findings could be seen in other populations or studies. Additionally, the EAT-26 is a non-diagnostic measure. Severity of an eating disorder could possibly be better measured with diagnostic tools available to a specialist. The population was mostly undiagnosed as well.

Participant burnout is a factor to be considered. At a total of 127 questions, this is a lengthy study. It could be quite easy for participants to get fatigued midway through the study and decide to randomly respond to questions to get to the end so that they received their course credits.

The meta-analysis completed by Sugernor and Maguire (2013) describes what problems that could have been involved with the reporting of eating disorder behaviors. Individuals may not have accurately responded to the survey for fear of judgment by the researcher, despite it being stated that the survey was confidential. Additionally, individuals with severe eating disorder behavior may not be willing to admit to themselves or others that their behavior is serious, worthy of concern, or is problematic in any sense. These biases may have skewed respondents' answers. Future designs could implement measures that are less susceptible to self-report issues. This could be done with some kind of implicit measure for ED symptoms, ratings taken from peers, or consulting medical records for contextual information.

The current study leaves quite a bit of room to work in with future research. The items found in the Limiting Behaviors and Perceptions factor could be developed and researched further to create an independent scale for use in future research or clinical practice. Food perceptions and behaviors regarding food are relatively unexplored, but results from the current study suggest that they may be important factors to consider. Future work in this area could

suggest new bases for diagnosis and new possibilities for treatment.

In conclusion, the current study found that the severity of an eating disorder and an individual's food perceptions are related. This might be applied in various ways in the future and could lead to better treatment for eating disorder patients. It emphasizes that food perceptions need to be taken into consideration, in both clinical and research settings, to understand what an individual is facing. Developing this area is a task worthy to pursue and could benefit researchers, clinicians, and patients in numerous ways. Finally, this work highlights the importance of looking at eating disorders from multiple perspectives. Investigating additional components of these disorders might lead to better theoretical understanding and insight. Identifying additional treatment pathways may also lead to better overall treatment for those suffering from these serious and potentially life-threatening conditions.

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