University of Mississippi

eGrove

Electronic Theses and Dissertations | Graduate School

1-1-2019

Behavioral Similarities And Differences Among Symptoms Of Emetophobia, Disordered Eating, And Disgust

Jennifer Arden Petell

Follow this and additional works at: https://egrove.olemiss.edu/etd

 Part of the Psychology Commons

Recommended Citation

Petell, Jennifer Arden, "Behavioral Similarities And Differences Among Symptoms Of Emetophobia, Disordered Eating, And Disgust" (2019). *Electronic Theses and Dissertations*. 1937.
https://egrove.olemiss.edu/etd/1937

This Thesis is brought to you for free and open access by the Graduate School at eGrove. It has been accepted for inclusion in Electronic Theses and Dissertations by an authorized administrator of eGrove. For more information, please contact egrove@olemiss.edu.

BEHAVIORAL SIMILARITIES AND DIFFERENCES AMONG SYMPTOMS OF EMETOPHOBIA, DISORDERED EATING, AND DISGUST

A Thesis

presented in partial fulfillment of requirements

for the degree of Master of Arts

in Clinical Psychology

The University of Mississippi

Jennifer A. Petell

December 2019

Copyright © 2019 by Jennifer A. Petell

ALL RIGHTS RESERVED

ABSTRACT

Emetophobia, also known as the specific phobia of vomiting (SPOV), is a clinical disorder with severe symptomatology and chronicity. However, there remains a significant lack of knowledge in overall conceptualization and etiological understanding. Recent literature has described this disorder within the context of abnormal eating disorders, despite the essential difference in symptom function between SPOV and disordered eating (Keyes & Veale, 2018; Volpe et al., 2015). Therefore, the present study sought to further the conceptualization and delineation of symptoms of emetophobia and disordered eating, as well as their potential relation with disgust. More specifically, it was hypothesized that symptoms of emetophobia and disordered eating would be positively correlated with the overall emotion of disgust. Further, it was hypothesized that disordered eating symptoms would no longer be associated with emetophobia symptoms when controlling for disgust. It was also hypothesized that females would endorse more symptoms of disordered eating and emetophobia than males. Finally, it was hypothesized that the subscales of the EAT-26 would differentially be associated with SPOV symptoms. Using an archival data sample, 184 participants completed self-report measures to assess symptoms of emetophobia, disordered eating, and disgust. Demographics were as follows: 74.0% female and 71.4% White (M_{age}= 19.1, SD= 1.70). Results found a significant association between symptoms of emetophobia and overall disordered eating symptoms. Further, SPOV symptoms were positively associated with the subscales of dieting and bulimia and food preoccupation but were not associated with the subscale of oral control. Among all participants (N= 184), there were no sex differences found between emetophobia or disordered eating

symptoms. However, among participants who endorsed clinical levels of either disordered eating or emetophobia symptoms, females reported significantly more symptoms of both disorders than males. Finally, although disgust was significantly associated with disordered eating symptoms, it was neither associated with nor predictive of symptoms of emetophobia in the current study. The current study provides preliminary research indicating emetophobia is significantly associated with disordered eating symptoms regardless of individual levels of disgust. Further, these findings suggest that the emotion of disgust may differentiate these two constructs and potentially provide predictive utility. Therefore, additional research into the conceptualization of emetophobia and disordered eating symptoms are warranted.

Keywords: emetophobia, specific phobia of vomiting, disordered eating, disgust

TABLE OF CONTENTS

LIST OF TABLES

I. INTRODUCTION

i. Emetophobia

Specific phobias afflict approximately 9.1% of adults in the United States each year, with more women (12.2%) affected than men (5.8%; National Comorbidity Survey, 2005). The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) differentiates between five types of specific phobias: animal, natural environment, blood-injection-injury, situational, and other (American Psychiatric Association, 2013). The 'other' category includes those specific phobias that do not fall under the four explicitly defined categories, such as the clinical fear of vomiting. The specific phobia of vomiting (SPOV), also known as emetophobia, is a critically understudied disorder in need of clear and thorough conceptualization (Boschen, 2007). Emetophobia is a seemingly underdiagnosed condition with limited epidemiological research. Studies have estimated the prevalence of emetophobia anywhere from 0.1% (Veale, Hennig & Gledhill, 2015) to 8.8% (van Hout & Bouman, 2012). Emetophobia consists of chronic and severe symptomatology of early onset and lasting persistence with symptoms presenting for an average of 25.9 years (Keyes & Veale, 2018; Lipsitz, Paterniti, & Klein, 2001). Research has shown that age of onset typically occurs between late childhood and adolescence (7.5 to 15.7 years of age; Keyes & Veale, 2018; Lipsitz, Paterniti, & Klein, 2001; Sykes, Boschen, & Conlon, 2015). However, recent studies have not observed significant differences in the symptoms experienced by individuals with early ages of onset as compared to individuals with later ages of onset (Veale, Hennig, & Gledhill, 2015). Finally, emetophobia typically

presents in women four times more than men, although both genders experience the disorder (Keyes & Veale, 2018; Lipsitz, Paterniti, & Klein, 2001; Van Hout & Bouman, 2012). The fear of vomiting is a unique, understudied specific phobia that primarily affects young women with severe and persistent symptoms.

While the core symptom of emetophobia is the intense and debilitating fear of emesis, a variety of disparities exist among possible clinical presentations. Individuals may present as being primarily fearful of vomiting themselves (reported by 41-75% of participants), while some place greater emphasis on seeing others vomit in their presence (reported by 18-45% of participants; Keyes & Veale, 2018). Other fear emphases include vomiting in front of strangers in a public location (reported by 16-62% of participants), choking on vomit followed by subsequent death, and the experience of severe distress over the bodily sensations associated with emesis (Keyes & Veale, 2018; Van Hout & Bouman, 2012). Symptoms of increased sensitivity to general bodily sensations, particularly nausea, are also evident in individuals diagnosed with emetophobia (Höller, van Overveld, Jutglar, & Trinka, 2013). Additionally, emetophobics may present with symptoms that mirror obsessive-compulsive symptoms. Such symptoms include a mixture of repetitive behaviors involving excessive hand washing, behavioral or situational avoidance, extreme reassurance seeking, and the urge to check oneself or others for signs of illness (Veale, Hennig, & Gledhill, 2015). The dominant emotions experienced in emetophobia are fear and "bodily disgust and shame (or self-disgust)" (Veale, Hennig, & Gledhill, 2015). Given the wide variety of symptomatology and fear emphases, further clarification and understanding of the etiological origins of the disorder is necessary to provide a more comprehensive conceptualization (Boschen, 2007).

The placement of emetophobia in the 'other' category of specific phobia is indicative of the lack of research currently available. Many studies that investigate specific phobias neglect to include emetophobia as a unique categorical placement in research, which is likely due to the lack of present research on emetophobia (Grenier et al., 2011). However, it is unclear whether this lack of empirical research among clinical and non-clinical populations is a result of the relatively low prevalence rate of emetophobia or rather a poor understanding of the disorder among health professionals. For instance, a recent study found that emetophobia was unknown to 29.7% of health professionals surveyed (whose careers reportedly focused on eating disorders), with 61.3% consequently reporting that the disorder deserved more attention and research (Vandereycken, 2011). While further research with a larger sample of health professionals is needed, the results are still alarming as patients may be misdiagnosed or given incorrect treatment. With low prevalence rates, research with clinical SPOV populations has proved difficult. Currently, the majority of the data is from case studies (e.g. Maack, Deacon, & Zhao, 2013) and other small samples or via internet support groups that lack official clinical diagnoses (emetophobia.org; phobiasupport.com). Additionally, on average, individuals with SPOV experience symptoms for 14.25 years before presenting for clinical services (Keyes & Veale, 2018; Veale et al., 2015). It could be that emetophobics might not be aware that treatment exists or lack the means to receive professional assistance. Thus, it is necessary to provide a complete conceptualization of the disorder to understand and disseminate efficacious treatment.

Like other specific phobias, emetophobia is highly comorbid with multiple psychiatric conditions. SPOV is often experienced alongside both anxious and depressive symptoms (Wu et al, 2015). Specific disorders highly comorbid with emetophobia are social anxiety disorder (SAD), panic disorder, generalized anxiety disorder (GAD), major depressive disorder (MDD),

obsessive-compulsive disorder (OCD), and hypochondriasis (Sykes, Boschen, & Conlon 2016; Veale, Hennig, & Gledhill, 2015). Abnormal eating patterns have also been identified in some emetophobic individuals, such as portion restriction (Veale et al., 2012), development of eating rituals (Lipsitz, Paterniti, & Klein, 2001), and the avoidance of specific foods (Höller et al., 2013). Given the evidence of disordered eating symptomology in some individuals, emetophobia has recently been classified as a "proposed eating syndrome" (Volpe et al., 2015) and has been discussed in the context of "complex and atypical eating disorders" (Keyes & Veale, 2018). Although the disorders share some similar symptoms, the motivations associated with abnormal eating behaviors within each disorder serve disparate purposes. Atypical eating patterns in disordered eating serve to limit the process of weight gain, while such patterns act as a safeguard from vomit-inducing food situations (ex: food poisoning) in emetophobia. Further research is needed to determine if true comorbidity exists between eating disorders and emetophobia, though available research has not found a significant association (Becker et al., 2007).

ii. Disordered Eating

Clinical disordered eating symptoms are classified under the category of Feeding and Eating Disorders in the DSM-5, which consists of multiple disorders with contrasting symptom presentations: anorexia nervosa (AN), bulimia nervosa (BN), binge eating disorder (BED), other specified feeding and eating disorder (OSFED), unspecified feeding and eating disorder (UFED), and avoidant/restrictive food intake disorder (ARFID; American Psychiatric Association (APA), 2013). Significant gender differences have been observed as more females are predominantly affected by eating disorders (EDs), accounting for 90% of individuals (Preyde, Watson, Remers, & Stuart, 2016). A recent systematic review found that among two-stage design studies, consisting of both a clinical interview and self-report measure, prevalence rates of 0.5% to 5.3%

were observed in females versus rates in males of 0.62% to 0.64% (Dahlgren & Wisting, 2016). Age of onset for eating disorders has typically been observed around adolescence and early adulthood (Volpe et al., 2016). However, recent research has shown increasing evidence that EDs occur among all ages of the life span, particularly in middle-aged women (Ballard & Crane, 2015; Dahlgren & Wisting, 2016).

The heterogeneity of eating disorders is vast and encompasses both individuals who restrict food/caloric intake to those who excessively consume food. Anorexia nervosa (AN) is characterized by significantly low body weight, excessive worrying about personal appearance and gaining weight, and the restriction or complete elimination of food intake (APA, 2013). Recently, the fifth edition of the DSM has altered the criteria for AN to increase the minimum weight loss necessary and remove amenorrhea (APA, 2013). Bulimia nervosa (BN) is characterized by periods of binge eating large amounts of food followed by at least one form of purging. Purging can occur through self-induced vomiting, excessive use of laxatives, and/or extreme amounts of exercise. The DSM-5 has reduced the criteria of binging frequency from twice per week to once per week for BN (APA, 2013). Another disordered eating diagnosis is binge eating disorder (BED), which is similar to BN in that large amounts of food are consumed over a specific period of time. However, individuals with BED experience intense feelings of lack of control and do not engage in purging behaviors. Unlike AN and BN, nearly half of those with binge eating disorder develop symptoms in adulthood (Ballard & Crane, 2015). Changes to DSM-5 criteria for BED include changing the frequency of binges to once per week for 3 months, as well as adding BED as an independent disorder (Allen, Byrne, Oddy, & Crosby, 2013; APA, 2013). The designation of eating disorder not otherwise specified (EDNOS) is now separated into two separate categories in the DSM-5. The other specified feeding and eating

disorders (OSFED) diagnosis encompasses those individuals who present with significant clinical symptoms that do not resemble AN, BN, or BED (ex: night eating syndrome and subthreshold disorders; Allen et al., 2013). The diagnosis of unspecified feeding and eating disorders (UFED) includes symptoms that do not fit into a diagnostic categories or lack appropriate information (Allen et al., 2013). Finally, rumination disorder (repeated regurgitation of food), pica (consumption of non-food items), and avoidant/restrictive food intake disorder (ARFID; picky eating with nutritional deficiencies) are now applicable to both children and adults in the DSM-5 (Bryant-Waugh, Kreipe, & Walsh, 2010; Call, Walsh, & Attia, 2013; Zickgraf, Franklin, & Rozin, 2016). Thus, it is evident that eating disorder symptoms vary significantly across different diagnoses.

Eating disorders often occur alongside a wide range of psychiatric comorbidities. A recent study conducted by Ulfvebrand et al. (2015) using a large clinical database found that 71% of individuals with disordered eating experienced at least one additional mood or anxiety disorder. Further, anxiety disorders were most commonly associated with disordered eating symptom comorbidity with similar prevalence rates were noted among males and females (Gadalla & Piran, 2008; Swinbourne & Touyz, 2007; Ulfvebrand et al., 2015). In particular, generalized anxiety disorder (GAD) was found to have the highest comorbidity at around 30% (Ulfvebrand et al., 2015). Body dysmorphic disorder (BDD), considered an obsessive-compulsive related disorder, has also been significantly associated with eating disorders in general. One study found that 45% of individuals diagnosed with ED also endorsed significant symptoms of BDD (Dingemans, van Rood, de Groot, & van Furth, 2012). Further, individuals with anorexia nervosa (AN) specifically were twice as likely to be diagnosed with OCD than those diagnosed as BN or EDNOS (Ulfvebrand et al., 2015). Notably, Ulfvebrand et al. (2015)

found that the comorbidity of specific phobias and AN restricting type displayed significant gender differences as 13.2% of women endorsed both disorders, while 0% of men sampled endorsed this specific comorbidity. Mood disorders are also found to be significantly comorbid with eating disorders (43% of females and 40% of males; Ulfvebrand et al., 2015). Importantly, there exists a 50-fold increased risk of suicidality for individuals diagnosed with AN (Chavez & Insel, 2007). Additionally, substance-related disorders are commonly comorbid (6-55%) and are more commonly experienced in bulimia nervosa than AN (Ulfvebrand et al., 2015). Overall, symptoms of eating disorders are often experienced alongside additional symptoms of affective disorders.

The explicit comorbidity between the specific phobia of vomiting and disordered eating has yet to be empirically demonstrated. While some similarities exist, such as abnormal eating behaviors and gender, the primary function and motivation behind these actions differ. Atypical eating patterns in disordered eating function as way to alter body weight and the outward appearance, while these behaviors are utilized to minimize the risk of potential vomiting in emetophobia (cooking food longer than necessary or checking sell by dates; Veale, Costa, Murphy, & Ellison, 2012). To date, there is substantially more information and research on eating disorders compared to emetophobia. This research trend might be due to the independent categorization of EDs in the DSM-5, the popularization of EDs and media influence, or the subsequent increase in prevalence rates (Dahlgren & Wisting, 2016). Despite the disparate functionality of emetophobia and disordered eating, there are proponents who discuss these disorders within similar diagnostic contexts, suggesting emetophobia be considered a "proposed eating syndrome" and conceptualized under abnormal or atypical eating disorders (Keyes & Veale, 2018; Volpe et al., 2015). Thus, more research regarding the clinical differences and

similarities between these two disorders is necessary to clarify conceptualizations of emetophobia and eating disorders.

iii. Disgust

Darwin (1872) was the first to identify the emotion of disgust, which is considered one of the six basic emotions experienced by humans across all cultures (Ekman & Friesen, 1971). Disgust is a heterogenous, negatively valenced emotion that is defined as "revulsion at the prospect of incorporation of an offensive object" and is often expressed through the prototypical disgust face (Rozin & Fallon, 1987, p23). This facial reaction, known as the gape response, is demonstrated when individuals wrinkle the nose and raise the upper lip simultaneously in response to any stimuli they consider repulsive (Yoder, Widen, & Russell, 2016). Items considered disgusting range from fecal matter to immorality and have consequently been separated into specific domains (Yoder, Widen, & Russell, 2016). Rozin, Haidt, and McCauley (2000) developed a four-factor taxonomy which is considered the most accepted conceptualization (Haberkamp, Glombiewski, Schmidt, & Barke, 2017). This conceptualization separates disgust into core, animal-reminder, interpersonal and contamination, and moral domains (Rozin, Haidt, & McCauley, 2000). Core disgust is characterized as a "threat of oral incorporation" by waste (ex: feces or a moldy orange), while animal-reminder disgust refers to stimuli that are reminders of death (ex: blood or ashes of human remains; Haberkamp et al., 2017). Interpersonal and contamination disgust refer to the spreading of disease among individuals (ex: a picture of an individual sneezing or a used tissue), whereas moral disgust is characterized as violations of morality (ex: stealing or incest; Haberkamp et al., 2017). Disgust can further be understood as an evolutionary adaptation of behavior that functions to increase the odds of survival (Curtis, De Barra, & Aunger, 2011; Rottman, 2014; Tybur, Lieberman, &

Griskevicius, 2009; Tybur, Lieberman, Kurzban, & DeScioli, 2013). For instance, disgust stimulates harm or disease avoidance to protect against potential risk factors that may impact health and mortality (ex: avoiding individuals contaminated with disease pathogens; Olatunji, Armstrong, & Elwood, 2017). As emotional and behavioral avoidance strategies are likewise utilized in a variety of psychopathologies, the emotion of disgust is an important factor to consider in overall conceptualization and treatment.

Extensive research on disgust relative to psychological disorders has begun to be systematically studied in the past thirty years (McKay, 2017). The largest amount of research has examined disgust in relation to contamination fear found in OCD, specific phobias, and other anxiety disorders (McKay, 2017). Disgust has also been implicated in additional disorders, such as post-traumatic stress disorder (PTSD), disorders of sexual arousal, and depression (McKay, 2017; Powell, Overton, & Simpson, 2015). Regarding the specific phobia of vomiting, research has demonstrated that disgust is a significant feature of SPOV symptoms (Keyes, Gilpin, & Veale, 2017). Boschen, Veale, Ellison, and Reddell (2013) propose that emetophobics are predisposed to experience severe aversion to and increased experience of disgust reactions. For example, in two separate studies comparing emetophobic samples versus control, both disgust sensitivity and disgust propensity consistently displayed strong, significant associations with symptoms of emetophobia (Boschen, Veale, Ellison, & Reddell, 2013; Keyes & Veale, 2018). Moreover, in a recent study of individuals with symptoms of emetophobia, disgust sensitivity was found to better predict complaints of emetophobia in comparison to disgust propensity (van Overveld et al., 2008). This finding suggests that the degree to which an individual negatively interprets a situation has more impact than the general tendency for an individual to experience disgust (van Overveld et al., 2008). The proclivity for emetophobics to experience heightened

reactivity to disgust-eliciting stimuli serves to reinforce the perceived aversiveness of the stimuli and maintain avoidance behaviors. Verwoerd, van Hout, and de Jong (2016) examined emotional reasoning in non-clinical participants who scored high on the Emetophobia Questionnaire (EQ; indicating an increased experience of SPOV symptoms). Individuals with higher SPOV symptoms were found to utilize disgust- and anxiety-based emotional reasoning (i.e.: validating maladaptive thoughts and beliefs through physiological feelings) to infer danger and overestimate chances of contracting an illness after the presentation of emotionally neutral, disgust, or anxiously-valenced scenarios. Beyond anxiety, the emotion of disgust was specifically found to be the main element in elevated emotional reasoning among individuals with high fear of vomit (Verwoerd, van Hout, & de Jong, 2016). This finding suggests individuals with emetophobia may strengthen and maintain their symptoms through disgust-based emotional reasoning in particular (Verwoerd, van Hout, & de Jong, 2016). Overall, recent research indicates that the level of symptom severity in emetophobia is directly impacted by the sensitivity in which individuals experience the emotion of disgust.

Research on the association of disgust and disordered eating is limited with equivocal results. In non-clinical populations, the emotion of disgust has been found to be associated with increased awareness of body shape and heightened selectivity expressed in eating behaviors (Anderson et al., 2018; Chu, Bodell, Ribeiro, & Joiner, 2015). Kauer, Pelchat, Rozin, and Zickgraf (2015) examined the association between picky eating habits, disgust, and OCD symptoms within a non-clinical population of adults (consisting of two groups comprised of 16 picky eaters and 18 non-picky eaters). Results found that increased levels of both disgust sensitivity and OCD symptoms were significant predictors of picky eating habits (Kauer et al., 2015). Davey and Chapman (2009) aimed to further the understanding of the association

between disgust and disordered eating symptoms while also controlling for anxiety and anxiety sensitivity in a non-clinical sample. A small, significant association was found between symptoms of disordered eating and higher levels of disgust; however, the association became nonsignificant when controlling for anxiety in a regression analysis (Davey & Chapman, 2009). This finding suggests that disgust itself may not be an independent predictor of disordered eating symptomology.

Adding further equivocal data, Mayer et al. (2008) aimed to explore the relationship between disgust sensitivity and eating disorder symptoms in a large undergraduate student sample (n= 352). Results indicated no significant associations were observed among internal behaviors (i.e.: eating as a response to food restriction or emotional eating behaviors) of disordered eating and disgust in men or women (Mayer et al., 2008). Further, external eating behaviors were not significantly associated with disgust in men; though, a significant correlation was observed in women (Mayer et al., 2008). A second study was then specifically conducted to examine disgust sensitivity in women with both high (n= 29) and low (n= 30) external eating behaviors (i.e.: eating as a response to the presentation of food-related items). Results of the second study found that neither groups of low or high eating behaviors were related to disgust sensitivity, suggesting that disgust may not be an important component of internal and external eating behavior (Mayer et al., 2008). Thus, Mayer et al. (2008) provides further uncertainty regarding the relationship between disgust and disordered eating. Finally, Bell, Coulthard, and Wildbur (2017) examined sensory processing and disgust among individuals who self-identified with having eating disorders. Findings indicated that overall levels of disgust sensitivity were associated with self-diagnosis of an eating disorder (Bell, Coulthard, & Wildbur, 2017). Self-disgust was found to be associated with sensation seeking, low registration of sensations, and

sensation avoidance among individuals with anorexia and bulimia nervosa per a self-reported sensory profile (Bell, Coulthard, & Wildbur, 2017). Notably, Bell and colleagues (2017) found that disgust sensitivity was significantly associated with self-disgust in individuals with anorexia nervosa, but not with bulimia nervosa. This equivocal finding suggests that a potential difference in sensory processing (i.e.: sensation seeking, sensation avoidance, and low registration) may impact the experience of self-disgust among eating disorder pathology. Taken together, these findings indicate that the relationship between disgust and disordered eating symptoms may be differentially experienced across diagnoses in non-clinical populations.

Results are similarly equivocal in studies assessing disordered eating and disgust conducted among clinical populations. Troop, Murphy, Bramon, and Treasure (2000) conducted a preliminary examination of disgust sensitivity with individuals diagnosed with eating disorders using the DSM-IV (n= 74) as compared to control participants (n= 15). Results from the study found that individuals with eating disorders did not explicitly display increased sensitivity to disgust-eliciting stimuli when compared to controls (Troop et al., 2000). However, eating disorder pathology, as determined by the Eating Disorder Inventory (EDI), was found to be significantly associated with disgust sensitivity (Troop et al., 2000). Notably, symptoms of bulimia nervosa and drive for thinness were significantly associated with increased disgust sensitivity in three specific areas of the DS-R (food, death, and magical contagion; Troop et al., 2000). Thus, results from this study suggest disgust sensitivity may differ across subtypes of eating disorders. Schienle and colleagues (2004) conducted an experiment among patients diagnosed with bulimia nervosa (n= 11) and controls (n= 12), wherein disgust and fear-inducing stimuli were presented while using a functional magnetic resonance imaging (fMRI). Although the bulimic patients reported feeling the emotion of disgust when viewing the disgust-inducing

stimuli, this emotional change was not observed by altered central processing in fMRI imaging (Schienle et al., 2004). This finding suggests bulimic patients may not experience neurological responses indicative of increased global disgust sensitivity, thus further contributing to the equivocality of overall results. Finally, Bou Khalil and colleagues (2018) aimed to examine symptoms of disgust and fear among individuals who presented to an outpatient clinic for non-psychological ailments. Per self-report measures, results suggested that individuals who displayed higher levels of disordered eating symptoms were found to have significant associations with disgust, fear, and three specific anxiety disorders (social anxiety, agoraphobia, and injection/blood phobia; Bou Khalil et al., 2018). In contrast to aforementioned studies of clinical populations, this study suggests disgust may play a role in the experience of both anxiety and disordered eating symptoms. Taken together, these findings indicate that a potential difference in disgust sensitivity may exist among the various presentations of eating disorders. Therefore, more research is necessary to further understand the discrepancy observed between both clinical and non-clinical symptoms of disordered eating, as well as the manifestation of eating disorder symptomology with the emotion of disgust.

iv. The Present Study

The aim of the present study was to further the conceptualization and delineation of symptoms of emetophobia and disordered eating through assessing theoretical associations with the emotion of disgust. Previous research has described emetophobia as a "proposed eating syndrome" (Volpe et al., 2015) with some considering it within the context of abnormal eating disorders (Keyes & Veale, 2018), though the disorders display disparate cognitions and serve markedly different functions. Further, research indicated 80.4% of participants from an online emetophobia forum endorsed altering their eating behaviors as a result of the fear of vomiting,

while only 19.6% altered these behaviors as a result of a fear of gaining weight (Holler et al., 2013). This lack of diagnostic clarification complicates the potential misunderstanding among health professionals who may misdiagnose or incorrectly treat patients. It is necessary to distinguish between these two disorders as they present in similar demographics (young, female) and ultimately require different therapeutic treatments. Therefore, the following hypotheses were tested:

1) Symptoms of emetophobia and disordered eating will both be positively correlated with the construct of disgust.
2) Symptoms of emetophobia will be negatively correlated with the subscales of dieting and bulimia and food preoccupation as identified on the EAT-26.
3) Symptoms of emetophobia will be positively correlated with the subscale of oral control as identified on the EAT-26.
4) Replicating previous studies, it is hypothesized that females will endorse both increased symptoms of emetophobia and disordered eating as compared to males.
5) When controlling for symptoms of disgust, disordered eating symptoms will no longer be associated with the experience of SPOV symptoms.

II. METHOD

i. Participants

An archival data set was used in which participants were college-aged students recruited from the University of Mississippi. Undergraduate students received course or research credit in exchange for participating in the study. A G*Power analysis was performed to determine needed sample size. For the main analysis of hierarchical regression, at a power of 0.80 and to detect a small effect size (d= 0.2), a consequent sample size of N= 100 is sufficient (Faul, Erdfelder, Buchner, & Lang, 2009). Thus, an archival data set consisting of 194 participants was considered well-powered to test the primary hypotheses. Following data cleaning (detailed in primary statistical analyses), the final sample of 184 participants was 74.0% female between the ages of 18 to 36 years (M= 19.1, SD= 1.70). The ethnic breakdown of the sample was as follows: 71.4% White, 21.5% African American, 1.6% Asian or Pacific Islander, 0.6% Native American or Alaskan Native, and 4.9% Multiracial; and 5.4% identified as Hispanic.

ii. Measures

The Specific Phobia of Vomiting Inventory (see Appendix A)**.** The Specific Phobia of Vomiting Inventory (SPOVI; Veale et al., 2013) is a 14-item self-report questionnaire measuring fear of vomiting symptoms experienced within the past week. Items are rated from 0 (symptoms not at all experienced) to 4 (symptoms experienced all the time) on a likert-type scale. The measure provides a total SPOVI score, as well as two subscales assessing avoidance and threat monitoring behaviors. The SPOVI has demonstrated good internal consistency (α = .89) and both

convergent and divergent validity (Maack, Ebesutani, & Smitherman, 2017). The current study indicated good internal consistency (α =.89). The total SPOVI score was used in this study to assess symptoms of emetophobia in the primary analyses. The cutoff score of 10 or higher was used to identify cases that met clinical criteria for post-hoc analyses (Veale et al., 2013).

The Eating Attitudes Test - 26 (see Appendix B)**.** The Eating Attitudes Test - 26 (EAT-26; Garner, Olmsted, Bohr & Garfinkel, 1982) is a 26-item self-report screening measure assessing symptoms and behaviors associated with disordered eating. Items are rated from 0 (symptoms experienced never, rarely, or sometimes) to 3 (symptoms always experienced) on a likert-type scale. The measure provides an overall score of abnormal eating behaviors as well as three specific subscales (dieting, bulimia and food preoccupation, and oral control). The EAT-26 has demonstrated adequate validity and reliability (α = .90), as well as reasonable eating disorder sensitivity (about 90%; Garfinkel & Newman, 2000; Garner, Olmsted, Bohr, & Garfinkel, 1982; Mintz & O'Halloran, 2000). Further, each subscale was found to have adequate internal consistency (dieting: α = .90; bulimia and food preoccupation: α = .84; oral control: α = .83; Garner, Olmsted, Bohr, & Garfinkel, 1982). Results of the current study exhibited good internal consistency for the overall scale (α = .87) and dieting subscale (α = .83), though the other two subscales, bulimia and food preoccupation (α = .58) and oral control (α = .54), displayed poor internal consistency. The total EAT-26 score was examined in this study as a predictor variable to assess symptoms of disordered eating for all primary analyses. For post-hoc analyses, the cutoff score of 20 or larger was used to identify participants who reported clinical levels of disordered eating symptoms (Garner, Olmsted, Bohr, & Garfinkel, 1982). Additionally, each subscale was examined to assess specific associations with symptoms of emetophobia.

The Disgust Scale – Revised (see Appendix C)**.** The Disgust Scale – Revised (DS-R; Olatunji et al., 2007) is a 27-item self-report measure assessing symptoms and behaviors related to disgust. The first 14 items are rated from 0 (strongly disagree) to 4 (strongly agree) on a likert-type scale, and the final 13 items are rated from 0 (not disgusting at all) to 4 (extremely disgusting) on a similar scale. The measure provides a total disgust score, in addition to three subscales measuring core, animal reminder, and contamination-based disgust. The DS-R demonstrated acceptable split-half reliability and internal consistency ($\alpha = .84$; Olatunji et al., 2007). Results of the current study demonstrated adequate internal consistency overall ($\alpha = .82$). The total disgust score was examined in this study to assess overall symptoms of disgust and as a predictor variable.

iii. Procedure

Archival data were used. All procedures were approved by the University of Mississippi's Institutional Review Board prior to the commencement of the study. Participants were recruited via SONA systems and asked to present to the ADEPT lab. Following written informed consent, participants were given multiple measures in a questionnaire packet to complete and were then assessed with a semi-structured clinical interview (Anxiety Disorders Interview Schedule, ADIS-IV). Following the interview, participants were presented with eight Behavioral Approach Tasks (BATs). The current study focused solely on the three aforementioned measures included within the questionnaire packet.

III. RESULTS

i. Preliminary Analyses

Following data cleaning of the original sample of 194 participants, a total of ten participants were ultimately removed from the study. One participant was removed due to data entry error and four more were removed due to missing more than 10% of the variables of interest. Additionally, five more participants were excluded using Mahalanobis distance. Both the emetophobia variable and disordered eating variable were positively skewed suggesting the majority of the participants reported low levels of symptoms of both emetophobia and disordered eating. Upon further examination, 17 participants (9.2% of the sample) were found to have high symptoms of emetophobia and 24 participants (13% of the sample) endorsed symptoms of disordered eating as determined by exceeding the aforementioned clinical cutoffs. Although these cases (21.7% of sample, N= 40) are constituted as outliers, they were not excluded from the study as they are suggestive of clinical cases and reflect the low base rates of the variables of interest in the general population. Thus, final analyses were completed with the remaining 184 participants.

Data from the final sample of 184 participants were 74.0% female between the ages of 18 to 36 years (*M*= 19.1, *SD*= 1.70). Ethnic breakdown of the sample was as follows: 71.4% White, 21.5% African American, 1.6% Asian or Pacific Islander, 0.6% Native American or Alaskan Native, and 4.9% Multiracial; and 5.4% identified as Hispanic.

ii. Primary Analyses

Hypothesis 1. To test the hypothesis that symptoms of emetophobia and disordered eating will be positively correlated with disgust, a zero-order Pearson correlational analysis was run between all constructs of interest (table 1). Results demonstrated symptoms of disordered eating were significantly, positively associated with disgust ($p<.05$, $r=.15$). Upon further examination, the subscale of dieting ($p<.05$, $r=.17$) was the only subscale that was significantly associated with disgust symptoms (bulimia and food preoccupation: $p=.17$, $r= .10$; oral control: $p=.92$, $r=.01$). However, symptoms of emetophobia were not significantly associated with disgust ($p=.09$, $r=.12$).

Hypothesis 2 and 3. Zero-order Pearson correlational analyses were also performed to test the hypotheses that emetophobia symptoms will be negatively correlated with the subscales of dieting and bulimia and food preoccupation and emetophobic symptoms will be positively correlated with the oral control subscale, respectively (table 1). Results indicated symptoms of emetophobia were positively, significant associated with the subscales of dieting and bulimia and food preoccupation (both subscales: $p <.01$, $r=.31$). However, symptoms of emetophobia were not significantly associated with the subscale of oral control ($p=.23$, $r=.09$).

Hypothesis 4. To test the hypothesis that females will endorse increased symptoms for both symptoms of emetophobia and disordered eating as compared to males, an independent samples *t* tests was run to determine any mean differences between the two independent groups of males and females (table 2). Results suggested no significant difference among means between males and females within symptoms of emetophobia (t (74.7) = .410, $p= .68$) or disordered eating (t (90.6) = .575, $p= .57$).

Hypothesis 5. Finally, a hierarchical linear regression was performed to test the hypothesis that after controlling for symptoms of disgust, disordered eating symptoms will no longer be associated with the experience of SPOV symptoms. Disordered eating symptoms and disgust were entered as independent predictor variables with emetophobia symptoms as the dependent variable. Step 1 was calculated with the predictor of disordered eating symptoms, and Step 2 utilized disgust as the predictor (table 3). Results found that both models were significant; Step 1 was significant at $F(1, 182) = 20.17$, $p < .001$, $\Delta R^2 = .1$, and step 2 was significant at $F(2, 181) = 10.73$, $p < .001$, $\Delta R^2 = .006$. However, the significance of the second model was entirely a result of the disordered eating predictor ($p < .001$, $r = .32$, $\beta = .30$), as the additional predictor of disgust did not add any unique variance ($p = .27$, $r = .12$, $\beta = .08$).

iii. Post-hoc Analyses

A post-hoc analysis was conducted to examine potential sex differences between participants who endorsed clinical symptoms (defined as at or above the clinical cutoff) of either disordered eating or emetophobia. To determine demographics of those participants, statistical frequencies were calculated within the 9.2% of participants who endorsed clinical emetophobia symptoms and the 13% who endorsed clinical disordered eating symptoms (table 3). Individuals who endorsed SPOV symptoms were 76.5% female (23.5% male) and participants who endorsed disordered eating symptoms were 75% female (25% male).

A secondary post-hoc analysis was further conducted among the 9.2% of individuals who endorsed clinical symptoms of emetophobia. A bivariate correlation was run to assess if disgust was significantly related to clinical SPOV symptoms. Similar to the primary analysis, results remained insignificant ($p = .928$).

IV. DISCUSSION

The exact association between emetophobia and eating disorders has not yet been demonstrated in existing literature. Therefore, the current study sought to assess the potential associations between these disorders, as well as to investigate whether the emotion of disgust contributes unique variance.

To add to the theoretical understanding of the potential relation between symptoms of emetophobia and disordered eating, results from the present study found that symptoms of emetophobia were significantly associated with disordered eating symptoms (table 1). This finding is consistent with prior literature demonstrating that eating disorders are comorbid with a variety of anxiety disorders (Ulfvebrand et al., 2015). Despite recent research explicating emetophobia within the context of eating disorders (Keyes & Veale, 2018; Volpe et al., 2015), this was not supported by the present study. Although symptoms of emetophobia and disordered eating were comorbid, the small to medium effect size (r=.32) suggests some symptom overlap exists between the disorders but evidences no multicollinearity (as indicated by large effect sizes; Disatnik & Sivan, 2016). Therefore, results suggest symptoms assessed by the SPOVI and EAT-26 measure separate psychological constructs.

Notably, in the present study, participants demonstrated a higher frequency of clinical disordered eating (i.e. symptoms that met the clinical threshold; 13% of the current sample) when compared to those with clinical levels of emetophobia symptoms (9.2% of the current sample). These frequencies among the current sample are reflective of larger base rates of Eds observed in the general population (Dahlgren & Wisting, 2016). The disparity between the

observed frequencies in the current sample further indicate that symptoms of disordered eating and emetophobia are experienced in distinct disorders with unique base rates. As such, results of this study support the theoretical distinction between emetophobia and EDs and highlight the need for diagnostic clarification and dissemination.

Interestingly, the current study found that emetophobia symptoms were positively associated with the EAT-26 subscale of dieting. Regarding the significant association of SPOV symptoms with the dieting subscale, it may be noted that the function behind the dieting behavior was not specifically assessed. Rather, the dieting subscale assesses for the presence of symptoms which may be indicative of dieting behaviors, such as being aware of caloric and carbohydrate intake and preoccupation of weight. In contrast, individuals with emetophobia may have low body weight as a direct result of food restriction intended to lower the risk of vomiting (for example: concerns of food poisoning; Keyes & Veale, 2018). Thus, as the purpose behind the restricting behaviors was not assessed, the significant relation between emetophobic symptoms and the subscale of dieting could conceptually be expected (Keyes, Gilpin, & Veale, 2017).

Inherent in emetophobia is the fear of vomit; therefore, the positive association found with the bulimia and food preoccupation subscale in the current study is inconsistent with theoretical understanding. Within the EAT-26 subscale of bulimia and food preoccupation, it may be that individuals with symptoms of emetophobia endorsed the food preoccupation portion of the scale (such as preoccupied and controlled by food), rather than items related to bulimic behaviors (such as binge eating and the urge to vomit after meals). Finally, emetophobia symptoms were not associated with the subscale of oral control on the EAT-26, which assesses the degree an individual may limit the amount or type of food ingested. This is congruent with prior literature demonstrating that the majority of individuals who endorsed symptoms of

emetophobia altered their eating behaviors due to the fear vomiting (80.4%) as compared to the fear of gaining weight (19.6%; Holler et al., 2013). Of note, these two subscales (bulimia and food preoccupation; oral control) also displayed poor internal consistency in the current study. This indicates that individual items within these subscales did not accurately measure the intended construct and may under- or over-report relationships. Therefore, results and interpretations involving these two independent subscales should be interpreted with caution and broad generalizations are not warranted. As such, though the current study demonstrates a positive relationship between overall symptoms of emetophobia and disordered eating, the understanding of which specific behaviors or thoughts co-occur remain unknown.

When comparing the means of symptoms within both disordered eating and emetophobia, there were no significant differences observed between males and females in the total sample. As extensive prior literature and theoretical understanding indicate females endorse increased symptoms of both disorders (Keyes, Gilpin, & Veale, 2017), a post-hoc analysis was conducted for additional clarification. Upon further examination of the 9.2% of participants who endorsed clinical levels of SPOV symptoms, 76.5% were female (23.5% male). Similarly, of the 13% of participants who endorsed clinical levels of disordered eating symptoms, demographics were 75% female (25% male). These results indicate individuals who endorsed clinical levels of emetophobia and disordered eating were primarily female, whereas individuals who endorsed low to sub-clinical levels may be either sex. This discrepancy suggests a unique difference exists among individuals who endorse clinical symptoms of emetophobia and disordered eating.

Finally, the current study found that symptoms of disordered eating were significantly related to disgust, albeit a small effect (r=.15). As prior literature has documented an inconsistent relationship between disgust and eating disorders (such as Bell, Coulthard, & Wildbur, 2017;

Mayer et al., 2008), these results add to the equivocal association of symptoms. Interestingly, inconsistent with published literature (Boschen, Veale, Ellison, & Reddell, 2013; Keyes, Gilpin, & Veale, 2017), the current study did not find the basic emotion of disgust associated with emetophobia. As this finding contradicts the theoretical understanding of emetophobia, a post-hoc correlational analysis was conducted among the 9.2% of individuals who endorsed clinical symptoms of emetophobia. Similar to the primary analysis, post-hoc results remained insignificant (p=.928) indicating there was not a significant relationship observed between individuals who endorsed clinical levels of emetophobia and symptoms of disgust. Further, disgust did not provide additional variance when predicting symptoms of emetophobia above and beyond symptoms of disordered eating. Thus, the current study provides preliminary results indicating emetophobic symptoms are associated with symptoms of disordered eating regardless of disgust levels.

The discrepancy between the current results and conceptualization of disgust and the specific phobia of vomiting may have resulted from DS-R or SPOVI scale content. For instance, the DS-R primarily assesses behaviors associated with general disgust reactions, whereas the SPOVI primarily measures common thoughts often experienced in emetophobia. Thus, it may be that the two measures assess different aspects of an individual's responses (such as cognitions versus behaviors), thereby impacting the ability of disgust to predict emetophobia symptoms in the present study. Further studies may benefit by utilizing multiple measures of both disgust and emetophobia (e.g. adding the Three Domains of Disgust Scale (TDDS), Disgust Propensity and Sensitivity Scale (DPSS), and/or Emetophobia Questionnaire (EmetQ-13)) to further clarify the relationship.

The current study was not without limitations. The sample of participants itself requires further discussion. For instance, data was collected from a sample of undergraduate students with similar demographics such as majority female, freshman in college, and White. Although this distribution is often reflective of the university setting reported in many studies, results lack generalizability and may differ with more diverse samples (Henrich, Heine, & Norenzayan, 2010). Additionally, as participants were not formally assessed for psychological disorders, the external validity of the present study is limited to individuals without clinical diagnoses. Of note, individuals with emetophobia often exhibit severe behavioral and avoidance strategies (Sykes, Boschen, & Conlon 2016; Veale, Hennig, & Gledhill, 2015), which may lead to avoidance of academic studies designed to elicit anxiety. As such, the true relationship between clinical emetophobia and ED symptoms cannot be accurately assessed from the current study. Another limitation of the present study is the methodology of self-report measures. The social desirability response (SDR), a phenomenon wherein participants under-report the degree that a socially undesirable symptom (such as symptoms of disordered eating or emetophobia) effects their day-to-day experiences, may alter results (Smeding, Dompnier, Darnon, 2017). Despite the aforementioned limitations, the current study suggests a potential association between symptoms of disordered eating and emetophobia may exist regardless of individual disgust levels.

Further research into the understudied psychological disorder of emetophobia is warranted. More specifically, assessing the exact relationship of emetophobia symptoms with disordered eating symptoms in both clinical and non-clinical populations is necessary. By assessing convergent and divergent symptomology in these differing populations, the conceptualization of both disorders will become more accurate. Consequently, reliable dissemination among health care professionals and the general population will lead to more

effective diagnosis and treatment of both disorders. Contributory research may also examine the exact association of emetophobia symptoms, specifically comparing and contrasting cognitions and behaviors, with the emotion of disgust. Examining these symptoms using different self-report measures (such as EmetQ-13 or DPSS) may provide results that aid in the conceptualization of emetophobia. Behavioral approach tasks (BATs) may also provide additional information via a novel format for assessing symptoms of emetophobia. That is, the process of eliciting SPOV symptoms with a tangible phobia-related threat in the moment may provoke responses distinct from self-report measures. For example, requesting emetophobic participants to smell vomit during the experiment will likely elicit stronger emotional reactions, such as disgust. Taken together, the results and limitations of the present study provide preliminary data of an understudied disorder through novel hypotheses and sound statistical methodology.

i. Conclusion

Overall, the current study provided a preliminary investigation into the relationship of symptoms of emetophobia, disordered eating, and disgust. Results found a positive association between emetophobia and disordered eating symptoms. As this relationship resulted in a small to medium effect size (r=.32) indicating no multicollinearity, the current data support a theoretical separation of these two constructs as distinct disorders (despite the recent dissemination of emetophobia within eating disorder taxonomy (Keyes & Veale, 2018; Volpe et al., 2015)). Additionally, disgust was not found to be associated with nor predictive of emetophobia symptoms when controlling for disordered eating symptoms. Notably, disgust was found to have a positive association with disordered eating symptoms. Although this was a small effect size, these findings suggest the emotion of disgust may differentiate these two constructs and

potentially provide predictive utility. Implications of the current study suggest symptoms of emetophobia and disordered eating are unique disorders that may present with comorbidity and differing levels of disgust.

LIST OF REFERENCES

Allen, K. L., Byrne, S. M., Oddy, W. H., & Crosby, R. D. (2013). DSM–IV–TR and DSM-5 eating disorders in adolescents: Prevalence, stability, and psychosocial correlates in a population-based sample of male and female adolescents. *Journal of Abnormal Psychology, 122*(3), 720-732.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders (4th ed.)*. Washington, DC: Author. Text Revision.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th ed.)*. Washington, DC: Author. Text Revision.

Anderson, L. M., Reilly, E. E., Thomas, J. J., Eddy, K. T., Franko, D. L., Hormes, J. M., & Anderson, D. A. (2018). Associations among fear, disgust, and eating pathology in undergraduate men and women. *Appetite, 125*, 445-453.

Ballard, J., & Crane, D. R. (2015). Eating disorders treatment patterns by age. *Eating Disorders: The Journal of Treatment & Prevention, 23*(3), 262-274.

Barker K. & Davey G. C. L. (1997). Categories of disgust: A factor analysis study. University of Sussex, UK. *Cognitive Science Research* Paper, 471.

Becker, E. S., Rinck, M., Türke, V., Kause, P., Goodwin, R., Neumer, S., & Margraf, J. (2007). Epidemiology of specific phobia subtypes: Findings from the Dresden Mental Health Study. *European Psychiatry, 22*(2), 69-74.

Bell, K., Coulthard, H., & Wildbur, D. (2017). Self-disgust within eating disordered groups: Associations with anxiety, disgust sensitivity and sensory processing. *European Eating Disorders Review, 25*(5), 373-380.

Boschen, M. J. (2007). Reconceptualizing emetophobia: A cognitive-behavioral formulation and research agenda. *Journal of Anxiety Disorders, 21*(3), 407-419.

Boschen, M. J., Veale, D., Ellison, N., & Reddell, T. (2013). The Emetophobia questionnaire (EmetQ-13): Psychometric validation of a measure of specific phobia of vomiting (emetophobia). *Journal of Anxiety Disorders, 27*(7), 670-677.

Bou Khalil, R., Bou-Orm, I. R., Tabet, Y., Souaiby, L., & Azouri, H. (2018). Disgust and fear: Common emotions between eating and phobic disorders. *Eating and Weight Disorders,* 1-8.

Bryant-Waugh, R., Markham, L., Kreipe, R. E., & Walsh, B. T. (2010). Feeding and eating disorders in childhood. *International Journal of Eating Disorders, 43*(2), 98-111.

Call, C., Walsh, B. T., & Attia, E. (2013). From DSM-IV to DSM-5: Changes to eating disorder diagnoses. *Current Opinions in Psychiatry, 26*(6), 532-536.

Chavez, M., & Insel, T.R. (2007). Eating disorders: National Institute of Mental Health perspective. *American Psychologist, 62*(3), 159–166.

Chu, C., Bodell, L. P., Ribeiro, J. D., & Joiner, T. E. (2015). Eating disorder symptoms and suicidal ideation: The moderating role of disgust. *European Eating Disorders Review, 23*(6), 545-552.

Curtis, V., De Barra, M., & Aunger, R. (2011). Disgust as an adaptive system for disease avoidance behaviour. *Philosophical Transactions of the Royal Society of London B: Biological Sciences, 366*(1563), 389-401.

Dahlgren, C. L., & Wisting, L. (2016). Transitioning from DSM-IV to DSM-5: A systematic review of eating disorder prevalence assessment. *International Journal of Eating Disorders, 49*(11), 975-997.

Davey, G. L., & Chapman, L. (2009). Disgust and eating disorder symptomatology in a non-clinical population: The role of trait anxiety and anxiety sensitivity. *Clinical Psychology & Psychotherapy, 16*(4), 268-275.

Dingemans, A. E., van Rood, Y. R., de Groot, I., & van Furth, E. F. (2012). Body dysmorphic disorder in patients with an eating disorder: Prevalence and characteristics. *International Journal of Eating Disorders, 45*(4), 562-569.

Disatnik, D., & Sivan, L. (2016). The multicollinearity illusion in moderated regression analysis. *Marketing Letters: A Journal of Research in Marketing, 27*(2), 403–408.

Ekman, P., & Friesen, W. V. (1971). Constants across cultures in the face and emotion. *Journal of Personality and Social Psychology, 17*(2), 124-129.

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*, 1149-1160.

Gadalla, T., & Piran, N. (2008). Psychiatric comorbidity in women with disordered eating behavior: A national study. *Women & Health, 48*(4), 467-484.

Garfinkel, P. E., & Newman, A. (2001). The eating attitudes test: Twenty-five years later. *Eating and Weight Disorders, 6*(1), 1-24.

Garner, D.M., Olmsted, M.P., Bohr, Y., & Garfinkel, P.E. (1982). The Eating Attitudes Test: Psychometric features and clinical correlates. *Psychological Medicine, 12*(4), 871-878.

Grenier, S., Schuurmans, J., Goldfarb, M., Préville, M., Boyer, R., O'Connor, K., & Hudon, C. (2011). The epidemiology of specific phobia and subthreshold fear subtypes in a community-based sample of older adults. *Depression and Anxiety, 28*(6), 456-463.

Haberkamp, A., Glombiewski, J. A., Schmidt, F., & Barke, A. (2017). The DIsgust-RelaTed-Images (DIRTI) database: Validation of a novel standardized set of disgust pictures. *Behaviour Research and Therapy, 89,* 86-94.

Haidt, J., McCauley, C., & Rozin, P. (1994). Individual differences in sensitivity to disgust: A scale sampling seven domains of disgust elicitors. *Personality and Individual Differences, 6,* 701–713.

Hayes, A. F. (2013) *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach.* New York, NY, US: Guilford Press.

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? Behavioral and Brain Sciences, 33(2–3), 61–83.

Höller, Y., van Overveld, M., Jutglar, H., & Trinka, E. (2013). Nausea in specific phobia of vomiting. *Behavioral Sciences, 3*(3), 445-458.

Kauer, J., Pelchat, M. L., Rozin, P., & Zickgraf, H. F. (2015). Adult picky eating: Phenomenology, taste sensitivity, and psychological correlates. *Appetite, 90*, 219-228.

Keyes, A., Gilpin, H. R., & Veale, D. (2017). Phenomenology, epidemiology, co-morbidity and treatment of a specific phobia of vomiting: A systematic review of an understudied disorder. *Clinical Psychology Review, 60*, 15-31.

Keyes, A., & Veale, D. (2018). Atypical eating disorders and specific phobia of vomiting: Clinical presentation and treatment approaches. In L. K. Anderson, S. B. Murray, W. H. Kaye, L. K. Anderson, S. B. Murray, W. H. Kaye (Eds.), *Clinical handbook of complex and atypical eating disorders* (pp. 270-289). New York, NY, US: Oxford University Press.

Konečni, V. J. (2010). Responsible behavioral science generalizations and applications require much more than non-WEIRD samples. *Behavioral and Brain Sciences, 33*(2–3), 98–99.

Lipsitz, J. D., Fyer, A. J., Paterniti, A., & Klein, D. F. (2001). Emetophobia: Preliminary results of an internet survey. *Depression and Anxiety, 14*(2), 149-152.

Maack, D. J., Deacon, B. J., & Zhao, M. (2013). Exposure therapy for emetophobia: A case study with three-year follow-up. *Journal of Anxiety Disorders, 27*(5), 527-534.

Maack D.J., Ebesutani C, Smitherman T.A. (2017) Psychometric investigation of the specific phobia of vomiting inventory: A new factor model. *International Journal of Methods in Psychiatry Research 27*(1), 1-7.

Marzillier, S., & Davey, G. (2004). The emotional profiling of disgust-eliciting stimuli: Evidence for primary and complex disgusts. *Cognition and Emotion*, *18*(3), 313-336.

Mayer, B., Muris, P., Bos, A. R., & Suijkerbuijk, C. (2008). Disgust sensitivity and eating disorder symptoms in a non-clinical population. *Journal of Behavior Therapy and Experimental Psychiatry, 39*(4), 504-514.

McKay, Dean (2017). Presidential address: Embracing the repulsive: The case for disgust as a functionally central emotional state in the theory, practice, and dissemination of cognitive-behavior therapy. *Behavior Therapy, 48*(6), 731-738.

Mintz, L. B., & O'Halloran, M. S. (2000). The Eating Attitudes Test: Validation with DSM-IV eating disorder criteria. *Journal of Personality Assessment, 74*(3), 489-503.

Muris, P., Merckelbach, H., Nederkoorn, S., Rassin, E., Candel, I., & Horselenberg, R. (2000). Disgust and psychopathological symptoms in a non-clinical sample. *Personality and Individual Differences, 29*(6), 1163-1167.

Murray, S. B., & Anderson, L. K. (2015). Deconstructing atypical eating disorders: An overview of emerging eating disorder phenotypes. *Current Psychiatry Reports, 17*, 86.

National Comorbidity Survey. (2005). NCS-R appendix tables: Table 1. Lifetime prevalence of DSM-IV/WMH-CIDI disorders by sex and cohort. Table 2. Twelve-month prevalence of DSM-IV/WMH-CIDI disorders by sex and cohort. Accessed at: http://www.hcp.med.harvard.edu/ncs/publications.php.

Norris, M. L., Robinson, A., Obeid, N., Harrison, M., Spettigue, W., & Henderson, K. (2014). Exploring avoidant/restrictive food intake disorder in eating disordered patients: A descriptive study. *International Journal of Eating Disorders, 47*(5), 495–499.

Olatunji, B. O., Armstrong, T., & Elwood, L. (2017). Is disgust proneness associated with anxiety and related disorders? A qualitative review and meta-analysis of group comparison and correlational studies. *Perspectives on Psychological Science, 12*(4), 613-648.

Olatunji, B. O., Cisler, J. M., Deacon, B. J., Connolly, K., & Lohr, J. M. (2007a). The Disgust Propensity and Sensitivity Scale-Revised: Psychometric properties and specificity in relation to anxiety disorder symptoms. *Journal of Anxiety Disorders, 21*(7), 918-930.

Olatunji, B. O., & McKay, D. (2007). Disgust and psychiatric illness: Have we remembered? *The British Journal of Psychiatry, 190*(6), 457-459.

Olatunji, B. O., Williams, N. L., Tolin, D. F., Abramowitz, J. S., Sawchuk, C. N., Lohr, J. M., & Elwood, L. S. (2007). The Disgust Scale: Item analysis, factor structure, and suggestions for refinement. *Psychological Assessment, 19*(3), 281-297.

Powell, P. A., Overton, P. G., & Simpson, J. (2015). *The revolting self: Perspectives on the psychological, social, and clinical implications of self-directed disgust.* London, England: Karnac Books.

Preyde, M., Watson, J., Remers, S., & Stuart, R. (2016). Emotional dysregulation, interoceptive deficits, and treatment outcomes in patients with eating disorders. *Social Work in Mental Health, 14*(3), 227-244.

Rottman, J. (2014). Evolution, development, and the emergence of disgust. *Evolutionary Psychology, 12*(2), 417-433.

Rozin, P., & Fallon, A. E. (1987). A perspective on disgust. *Psychological Review, 94*, 23-41.

Rozin, P., Haidt, J., & McCauley, C. R. (2000). Disgust. In M. Lewis, & J. M. Haviland (Eds.), *Handbook of emotions* (pp. 637-653). New York, NY: Guilford Press.

Schienle, A., Stark, R., Schäfer, A., Walter, B., Kirsch, P., & Vaitl, D. (2004). Disgust and disgust sensitivity in bulimia nervosa: an fMRI study. *European Eating Disorders Review: The Professional Journal of the Eating Disorders Association, 12*(1), 42-50.

Smeding, A., Dompnier, B., & Darnon, C. (2017). Individual differences in perceived social desirability of openness to experience: A new framework for social desirability responding in personality research. *Personality and Individual Differences, 113*, 155–160.

Swinbourne, J. M., & Touyz, S. W. (2007). The co-morbidity of eating disorders and anxiety disorders: A review. *European Eating Disorders Review, 15*(4), 253-274.

Sykes, M., Boschen, M. J., & Conlon, E. G. (2016). Comorbidity in emetophobia (specific phobia of vomiting). *Clinical Psychology & Psychotherapy, 23*(4), 363-367.

Szmukler, G. I., Dare, C. E., & Treasure, J. E. (1995). *Handbook of eating disorders: Theory, treatment and research*. Oxford, England: John Wiley & Sons.

Troop, N. A., Murphy, F., Bramon, E., & Treasure, J. L. (2000). Disgust sensitivity in eating disorders: A preliminary investigation. *International Journal of Eating Disorders, 27*(4), 446-451.

Tybur, J. M., Lieberman, D., & Griskevicius, V. (2009). Microbes, mating, and morality: Individual differences in three functional domains of disgust. *Journal of personality and social psychology, 97*(1), 103.

Tybur, J. M., Lieberman, D., Kurzban, R., & DeScioli, P. (2013). Disgust: Evolved function and structure. *Psychological Review, 120*(1), 65.

Ulfvebrand, S., Birgegård, A., Norring, C., Högdahl, L., & von Hausswolff-Juhlin, Y. (2015). Psychiatric comorbidity in women and men with eating disorders results from a large clinical database. *Psychiatry Research, 230*(2), 294-299.

Van Hout, W. J., & Bouman, T. K. (2012). Clinical features, prevalence and psychiatric complaints in subjects with fear of vomiting. *Clinical Psychology and Psychotherapy, 19*(6), 531-539.

Van Overveld, W. M., de Jong, P. J., Peters, M. L., Cavanagh, K., & Davey, G. C. L. (2006). Disgust propensity and disgust sensitivity: Separate constructs that are differentially related to specific fears. *Personality and Individual Differences, 41*(7), 1241-1252.

Van Overveld, W. M., de Jong, P. J., Peters, M. L., van Hout, W. J., & Bouman, T. K. (2008). An internet-based study on the relation between disgust sensitivity and emetophobia. *Journal of Anxiety Disorders, 22*(3), 524-531.

Vandereycken, W. (2011). Media hype, diagnostic fad or genuine disorder? Professionals' opinions about night eating syndrome, orthorexia, muscle dysmorphia, and emetophobia. Eating Disorders: *The Journal of Treatment & Prevention, 19*(2), 145-155.

Veale, D., Costa, A., Murphy, P., & Ellison, N. (2012). Abnormal eating behaviour in people with a specific phobia of vomiting (emetophobia). *European Eating Disorders Review, 20*(5), 414-418.

Veale, D., Ellison, N., Boschen, M. J., Costa, A., Whelan, C., Muccio, F., & Henry, K. (2013). Development of an inventory to measure specific phobia of vomiting (emetophobia). *Cognitive Therapy and Research, 37(*3), 595-604.

Veale, David & Hennig, Camilla & Gledhill, Lucinda. (2015). Is a specific phobia of vomiting part of the obsessive compulsive and related disorders? *Journal of Obsessive-Compulsive and Related Disorders, 7,* 1-6.

Verwoerd, J., van Hout, W. J., & de Jong, P. J. (2016). Disgust- and anxiety-based emotional reasoning in non-clinical fear of vomiting. *Journal of Behavior Therapy and Experimental Psychiatry, 50*, 83-89.

Volpe, U., Atti, A. R., Cimino, M., Monteleone, A. M., De Ronchi, D., Fernández-Aranda, F., & Monteleone, P. (2015). Beyond anorexia and bulimia nervosa: What's "new" in eating disorders? *Journal of Psychopathology, 21*(4), 415-423.

Volpe, U., Tortorella, A., Manchia, M., Monteleone, A. M., Albert, U., & Monteleone, P. (2016). Eating disorders: What age at onset? *Psychiatry Research, 23*(8), 225-227.

Widen, S. C., Pochedly, J. T., Pieloch, K., & Russell, J. A. (2013). Introducing the sick face. *Motivation and Emotion, 37*(3), 550–557.

Wu, M. S., Rudy, B. M., Arnold, E. B., & Storch, E. A. (2015). Phenomenology, clinical correlates, and impairment in emetophobia. *Journal of Cognitive Psychotherapy, 29*(4), 356-368.

Yoder, A. M., Widen, S. C., & Russell, J. A. (2016). The word disgust may refer to more than one emotion. *Emotion, 16*(3), 301-308.

Zickgraf, H. F., Franklin, M. E., & Rozin, P. (2016). Adult picky eaters with symptoms of avoidant/restrictive food intake disorder: Comparable distress and comorbidity but different eating behaviors compared to those with disordered eating symptoms. *Journal of Eating Disorders, 4* (1), 26.

LIST OF APPENDICES

APPENDIX A: TABLE ONE

Table 1. *Bivariate correlations of all identified measures (N=184).*

	***M* (*SD*)**	**Disordered Eating (EAT-26)**	**Dieting Subscale (EAT-26)**	**Bulimia and Food Preoccup. Subscale (EAT-26)**	**Oral Control Subscale (EAT-26)**	**Disgust (DS-R)**
SPOV symptoms (SPOVI)	2.90 (4.51)	.32**	.31**	.31**	.09	.12
Disordered Eating (EAT-26)	8.92 (9.06)	---	.96**	.72**	.58**	.15*
Dieting Subscale (EAT-26)	6.52 (6.93)	.96**	---	.62**	.36**	.17*
Bulimia and Food Preoccupation Subscale (EAT-26)	.78 (1.55)	.72**	.62**	---	.29**	.10
Oral Control Subscale (EAT-26)	1.63 (2.25)	.58**	.36**	.28**	---	.01
Disgust (DS-R)	2.34 (.75)	.15*	.17*	.10	.01	---

*Note: * p < .05, **p < .01; SPOVI = Specific Phobia of Vomiting Inventory; EAT-26 = Eating Attitudes Test; DS-R = Disgust Scale- Revised*

APPENDIX B: TABLE TWO

Table 2. *Independent samples t-test, equal variances not assumed (female= 134; male= 47).*

	M	***SD***	***SE***	***Sig 2-tailed***	***t***	**df**	**95% CI**
Emetophobia symptoms				.68	.41	74.68	-1.19, 1.85
Female	3.00	4.43	.38				
Male	2.67	4.85	.71				
Disordered eating symptoms				.57	.58	90.64	-2.22, 3.89
Female	9.21	9.40	.81				
Male	8.38	8.23	1.21				

*Note: * $p < .05$, ** $p < .01$*

APPENDIX C: TABLE THREE

Table 3. *Demographics of participants endorsing clinical level of symptoms (N= 40).*

	Female	**Male**	**Mean Age**
Emetophobia symptoms (*N*=17)	13 (76.5%)	4 (23.5%)	18.6
Disordered eating symptoms (*N*=24)	18 (75.0%)	6 (25.0%)	19.0

*Note: * p < .05, **p < .01*

APPENDIX D: TABLE FOUR

Table 4. *Hierarchical linear regression with SPOV symptoms as the outcome variable.*

	ΔR^2	*B*	*SE B*	β	*p*
Step 1	.10				<.001
Disordered eating symptoms (EAT-26)		.16	.04	.32**	<.001
Step 2	.11				.69
Disordered eating symptoms (EAT-26)		.15	.04	.30**	<.001
Disgust (DS-R)		.48	.43	.08	.26

*Note: *p < .05, **p < .01; SPOVI = Specific Phobia of Vomiting Inventory; EAT-26 = Eating Attitudes Test; DS-R = Disgust Scale- Revised*

APPENDIX E: THE SPECIFIC PHOBIA OF VOMITING INVENTORY

Please circle the number in the box that best describes how symptoms of vomiting have affected you over the past week, including today.

	Not at all 0	A little 1	Often 2	A lot 3	All the time 4
1) I have been worrying about myself or others vomiting	0	1	2	3	4
2) I have been avoiding adults or children because of my fear of vomiting	0	1	2	3	4
3) I have been avoiding situations or activities because of my fear of vomiting	0	1	2	3	4
4) I have been trying to find reasons to explain why I feel nauseous	0	1	2	3	4
5) I have been avoiding objects that other people have touched because of my fear of vomiting	0	1	2	3	4
6) I have been focused on whether I feel ill and could vomit rather than on my surroundings	0	1	2	3	4
7) I have been looking at others to see if they may be ill and vomiting	0	1	2	3	4
8) If I think I am going to vomit, I do something to try to stop myself from vomiting	0	1	2	3	4
9) I have been trying to avoid or control any thoughts or images about vomiting	0	1	2	3	4
10) I have been restricting the amount or type of food I eat or alcohol I drink because of my fear of vomiting	0	1	2	3	4
11) I have been feeling nauseous	0	1	2	3	4
12) I have been thinking about how to stop myself or others from vomiting	0	1	2	3	4

13) I have been seeking reassurance that I or others will not be ill and vomit	0	1	2	3	4
14) I have escaped from situations because I am afraid I or others may vomit	0	1	2	3	4

APPENDIX F: THE EATING ATTITUDES TEST (EAT-26)

Part A: Complete the following questions:

1) Birth Date Month: _____ Day: _____ Year: _____
2) Male Female
3) Height Feet: _____ Inches: _____
4) Current Weight (lbs.): _____
5) Highest Weight (excluding pregnancy):_____
6) Lowest Adult Weight: _____ 7) Ideal Weight:_____

Part B: Please check a response for each of the following statements:

	Always	Usually	Often	Sometimes	Rarely	Never
1. Am terrified about being overweight.						
2. Avoid eating when I am hungry.						
3. Find myself preoccupied with food.						
4. Have gone on eating binges where I feel I may not be able to stop.						
5. Cut my food into small pieces.						
6. Aware of the calorie content of foods.						
7. Particularly avoid food with a high carbohydrate content (i.e. bread, rice, potatoes, etc.)						
8. Feel that others would prefer if I ate more.						
9. Vomit after I have eaten.						
10. Feel extremely guilty after eating.						
11. Am preoccupied with a desire to be thinner.						
12. Think about burning up calories when I exercise.						

13. Other people think I am too thin.						
14. Am preoccupied with the thought of having fat on my body.						
15. Take longer than others to eat my meals.						
16. Avoid foods with sugar in them.						
17. Eat diet foods.						
18. Feel that food controls my life.						
19. Display self-control around food.						
20. Feel that others pressure me to eat.						
21. Give too much time and thought to food.						
22. Feel uncomfortable after eating sweets.						
23. Engage in dieting behavior.						
24. Like my stomach to be empty.						
25. Have the impulse to vomit after meals.						
26. Enjoy trying new rich foods.						

Part C: Behavioral Questions.
In the past month have you:

	Never	Once a month or less	2-3 times a month	Once a week	2-6 times a week	Once a day or more
A. Gone on eating binges where you feel that you may not be able to stop?						
B. Ever made yourself sick (vomited) to control your weight or shape?						
C. Ever used laxatives, diet pills or diuretics (water pills) to control your weight or shape?						
D. Exercised more than 60 minutes a day to lose or to control your weight?						
E. Lost 20 pounds or more in the past 6 months?	Yes			No		

APPENDIX G: DISGUST SCALE-REVISED (DS-R)

Please indicate how much you agree with each of the following statements, or how true it is about you. Please write a number (0-4) to indicate your answer:

0 = Strongly disagree (very untrue about me)
1 = Mildly disagree (somewhat untrue about me)
2 = Neither agree nor disagree
3 = Mildly agree (somewhat true about me)
4 = Strongly agree (very true about me)

____1. I might be willing to try eating monkey meat, under some circumstances.
____2. It would bother me to be in a science class, and to see a human hand preserved in a jar.
____3. It bothers me to hear someone clear a throat full of mucous.
____4. I never let any part of my body touch the toilet seat in public restrooms.
____5. I would go out of my way to avoid walking through a graveyard.
____6. Seeing a cockroach in someone else's house doesn't bother me.
____7. It would bother me tremendously to touch a dead body.
____8. If I see someone vomit, it makes me sick to my stomach.
____9. I probably would not go to my favorite restaurant if I found out that the cook had a cold.
____10. It would not upset me at all to watch a person with a glass eye take the eye out of the socket.
____11. It would bother me to see a rat run across my path in a park.
____12. I would rather eat a piece of fruit than a piece of paper
____13. Even if I was hungry, I would not drink a bowl of my favorite soup if it had been stirred by a used but thoroughly washed flyswatter.
____14. It would bother me to sleep in a nice hotel room if I knew that a man had died of a heart attack in that room the night before.

How disgusting would you find each of the following experiences? Please write a number (0-4) to indicate your answer:

0 = Not disgusting at all
1 = Slightly disgusting
2 = Moderately disgusting
3 = Very disgusting
4 = Extremely disgusting

____15. You see maggots on a piece of meat in an outdoor garbage pail.
____16. You see a person eating an apple with a knife and fork
____17. While you are walking through a tunnel under a railroad track, you smell urine.
____18. You take a sip of soda, and then realize that you drank from the glass that an acquaintance of yours had been drinking from.
____19. Your friend's pet cat dies, and you have to pick up the dead body with your bare hands.
____20. You see someone put ketchup on vanilla ice cream, and eat it.
____21. You see a man with his intestines exposed after an accident.
____22. You discover that a friend of yours changes underwear only once a week.
____23. A friend offers you a piece of chocolate shaped like dog-doo.
____24. You accidentally touch the ashes of a person who has been cremated.
____25. You are about to drink a glass of milk when you smell that it is spoiled.
____26. As part of a sex education class, you are required to inflate a new unlubricated

condom, using your mouth.

____27. You are walking barefoot on concrete, and you step on an earthworm.

JENNIFER ARDEN PETELL *CURRICULUM VITAE*

email: japetell@go.olemiss.edu

EDUCATION

Doctor of Philosophy [expected 2024] **University of Mississippi**
Master of Arts [expected 2019]
[2017-present] Clinical Psychology

Bachelor of Science **Purdue University**
[2012-2016] Psychological Sciences [GPA: 3.88]
Cumulative GPA: 3.77 Minors: English and African American Studies

RESEARCH INTERESTS

Comprehensive research in the diverse presentations of specific phobia disorders (emetophobia), OCD, and anxiety disorders. I am especially interested in the high comorbidity and similar symptomology found within these disorders and personality disorders. I am interested in advancing the knowledge of the neurological, physiological, and cognitive etiologies and psychological predispositions of these disorders, with the ultimate hope to institute more efficacious treatments based upon these findings.

RESEARCH EXPERIENCE

Primary Investigator **Ole Miss, Department of Psychological Sciences**
[2019- present] *Supervisor:* Dr. Danielle J. Maack

Research Focus: To examine novel cognitive and behavioral symptoms that may be exhibited in individuals who endorse symptoms of emetophobia on forums or social media pages dedicated to emetophobia.

- https://www.theadeptlab.com/about

Responsibilities: To compile reliable and valid assessments to accurately measure a variety of symptoms, creating and designing a Qualtrics survey compiling all measures and additional questions, writing informed consent and study proposal for IRB approval, collecting data through multiple social media posts, and safely storing collected data.

Research Assistant (Graduate) **Ole Miss, Department of Psychological Sciences**
[2018- present] *Clinical Psychology:* Dr. Danielle J. Maack

Research Focus: To examine the symptoms of emetophobia, emotion dysregulation, disordered eating, health anxiety, and disgust among undergraduate students with self-report

measures, as well as investigating the degree to which participants will partake in behavioral approach tasks of stimuli associated with emetophobia.

Responsibilities: To assist in ongoing research including obtaining both informed and debriefing consent, running participants through a variety of behavioral approach tasks utilizing all five senses, training all undergraduate researchers to run participants, entering in all collected data, and maintaining weekly supply levels.

Research Assistant (Graduate) **Ole Miss, Department of Psychological Sciences**
[2017- present] *Clinical Psychology:* Dr. Danielle J. Maack

Research Focus: To longitudinally examine the experiences of depression, anxiety, disgust, sleep, vomiting, and vomit phobia with self-report measures postnatally and over the course of pregnancy at OBGYN clinics.

Responsibilities: To assist in ongoing research at multiple locations, including approaching potential participants and receiving appropriate informed consent, collecting and entering data, providing an interpretation of multiple measures through identifying participants with high anxiety and depression or suicidal thoughts to their respective OB doctors.

Research Assistant (Undergraduate) **IUPUI, Department of Psychological Sciences**
[2016] *Clinical Psychology:* Dr. Tamika Zapolski

Research Focus: To examine the relationship between substance abuse, criminal offenses, and racial disparities in high-risk, low SES communities. The relationships between past-month aggression, procedural or criminal injustices, and moral disengagement were also examined using the general strain theory. DBT treatment was also used in at-risk, largely minority youth as a possible preventative action against substance abuse and criminality.

Responsibilities: To assist in a variety of literary searches with the goal of publishing a concise and correct academic paper, to provide assistance in collecting materials necessary for smooth data collection, to contribute to pre- and post- data collection with at-risk youth, to aid in administering DBT lessons to youth in multiple school-based sessions, and to participate in weekly laboratory meetings.

Research Assistant (Undergraduate) **Purdue University, Department of Psychological Sciences**
[2015] *Clinical Psychology*: Dr. Daniel Foti

Research Focus: To examine neural activity through the psychophysiological techniques of EEGs and ERPs. The studies focused on the interaction of brain wave activity with the regulation of emotion, monitoring various performances, and the processing of monetary and non-monetary rewards in the Psychophysiological Analysis of Cognition, Emotion, and Reward Laboratory.

- https://sites.google.com/site/pacerlab/people

Responsibilities: Contributed largely to data collection, operating ERP and other programs, implementation of study protocols, correctly setting up EEG and visual

monitoring equipment, monitoring the various physiological signals in real-time, constant participant interaction, and correctly cleaning and storing EEG and visual equipment.

Research Assistant (Undergraduate) Purdue University, Department of Psychological Sciences

[2014-2015] *Social Psychology*: Dr. Tim McCall

Research Focus: To observe the interactions between social cognition, person perception, and how the actions specific group members make can affect impressions of non-implicated group members, resulting in contamination. Also investigated was the consequent effect on pro-social behaviors, stereotyping and prejudice, and perceptions of and voting for political candidates.

Responsibilities: Hypothesis formation, data collection and analysis, implementation of study protocols, writing and creating personality vignettes, some work with Qualtrics to program tasks, some SPSS usage, some data management and coding, one-on-one experience with participants, and the ultimate reporting of results.

OCCUPATIONAL EXPERIENCE

Graduate Student Intern **Level Up Consulting**

[2019- present]

Responsibilities: To conduct behavioral data analysis in accordance with Applied Behavioral Analysis (ABA), weekly data collection, conducting and writing functional behavioral analyses for children (Pre-K through 12) with intellectual, developmental, or emotional disabilities, to create behavioral intervention plans to be utilized in the school systems, and assist in functional analysis for adults with intellectual disability.

Graduate Student Therapist **Ole Miss Psychological Services Center**

[2018- present]

Responsibilities: To conduct full psychological assessments of individuals presenting for individual or group therapy, to conduct weekly individual therapeutic sessions with children and/or adults in a fluctuating patient population (i.e.: age, race, disorder), to maintain weekly progress notes and updated patient files, and to participant in weekly supervision meetings from a licensed psychologist.

Psychological and Behavioral Health Intern **North Mississippi Regional Center**

[2018- 2019]

Responsibilities: To provide weekly individual therapeutic sessions to individuals with severe to profound intellectual or developmental disabilities, to conduct cognitive assessments (intellectual, achievement, and adaptive testing) and diagnose individuals suspected to have learning or intellectual disabilities, to conduct re-evaluations of cognitive assessments on individuals diagnosed with intellectual or developmental disability, to maintain campus database of aberrant behaviors, to create individualized behavioral programs to address aberrant behaviors, and to participant in weekly supervision meetings from a licensed psychologist.

Mental Health Clinician **St. Vincent Hospital Stress Center**

[2016-2017]

Responsibilities: To assist in the efficiency of daily operations on six units in an intensive in-patient mental health hospital, to lead multiple group therapy sessions each day that are accurately modified to the diagnoses and presentations of patients in attendance, to provide psychological aid to a frequently fluctuating diverse patient population (i.e.: age, race, disorder), and to facilitate positive biopsychosocial advancements through constructive conversations, coping skills, and psychological education among patients.

TEACHING EXPERIENCE

Guest Lecturer — **Abnormal Psychology (PSY 321)**
[September 27, 2019] — *Dr. Danielle Maack*

Guest Lecturer — **Industrial and Organizational Psychology (PSY 321)**
[September 27, 2019] — *Dr. Danielle Maack*

Graduate Teaching Assistant — **Introduction to Psychology (PSY 201)**
[August 2019 to December 2019] — *Lavina Ho, M.S.*
[January 2020 to May 2020] — *Lavina Ho, M.S.*

Graduate Teaching Assistant — **Social Psychology (PSY 321)**
[August 2018 to December 2018] — *Dr. Marilyn Mendolia*
[January 2019 to May 2019] — *Dr. Marilyn Mendolia*

Graduate Teaching Assistant — **General Psychology (PSY 201)**
[August 2017 to December 2017] — *Dr. Todd Smitherman*

PUBLICATIONS

Petell, Jennifer A. & Maack, Danielle J. (2019). *Fight for your right (to not vomit): Fear tendencies and the contribution to emetophobic symptoms*. Manuscript in preparation.

POSTERS AND PRESENTATIONS

Tinsley, D., Sharpe, K., **Petell, J.**, Pruett, M. & Young, J. Integrating evidence-based psychological practice in a chronic pain treatment clinic: Preliminary results of an ongoing research project. Poster presentation at: 53rd Annual Convention of the Association for Behavioral and Cognitive Therapies, November 21-24th, Atlanta, GA.

Maack, D. J., & **Petell, J. A.** A transdiagnostic understanding of emetophobic symptoms: a multimodal approach. In J. Tyler (Chair) symposium entitled Mechanisms and Meaningful Outcomes. Symposium presentation at: 53rd Annual Convention of the Association for Behavioral and Cognitive Therapies, November 21-24th, Atlanta, GA.

Petell, Jennifer A. & Maack, Danielle J. What's disgust got to do with it? Talk presented at Three Minute Thesis (3MT) Competition at University of Mississippi; 2019 October 22; Oxford, MS.

Abbott, K., **Petell, J. A.,** & Maack, D. J. Depressive Symptoms and the Freeze Response. Poster presentation at: 6th Annual UM Conference on Psychological Science; 2019 April 12; Oxford, MS.

Petell, Jennifer A. & Maack, Danielle J. Is Fear of Vomit Associated with Suicidality in Pregnancy? Data blitz presented at: 6th Annual UM Conference on Psychological Science; 2019 April 12; Oxford, MS.

Williams, K., **Petell, J. A.,** & Maack, D. J. Symptoms of Health Anxiety and Disgust. Poster presentation at: 6th Annual UM Conference on Psychological Science; 2019 April 12; Oxford, MS.

Petell, Jennifer A. & Maack, Danielle J. Symptoms of Emetophobia and Suicidality Among Pregnant Women. Poster presentation at: 68th Annual Mississippi Psychological Association Convention; 2018 September 13; Biloxi, MS.

Petell, Jennifer A. & Maack, Danielle J. Emetophobic Symptoms and the Fight, Flight, Freeze Response System. Data blitz presented at: 5th Annual UM Conference on Psychological Science; 2018 April 13; Oxford, MS.

Petell, Jennifer A. *&* Maack, Danielle J. Emetophobia and Disordered Eating. Talk presented at Three Minute Thesis (3MT) Competition at University of Mississippi; 2017 October 26; Oxford, MS.

Maack, D. J. You Can Run but You Can't Hide (From Your Physiological Symptoms): Approaching Interoceptive Exposure. Assistant to presenter at: 67th Annual Mississippi Psychological Association Convention; 2017 September 21; Biloxi, MS.

HONORS & AWARDS

Semester Honors **Purdue University**
Fall 2012, Spring 2013, Fall 2013, Spring 2014, Spring 2015, Fall 2015, Spring 2016

Dean's List **Purdue University**
Fall 2012, Spring 2013, Fall 2013, Fall 2014, Spring 2014, Spring 2015, Fall 2015, Spring 2016

AFFILIATIONS & ORGANIZATIONS

Mississippi Psychological Association **University of Mississippi**
[08/2018- 12/2018] Student member

SPARC **Purdue University**
[2015-2016] Students of Purdue Against Racism Coalition Member

EXTRACURRICULAR & VOLUNTEER EXPERIENCE

Crossroads Behavioral Hospital **Batesville, Mississippi**
[September 2019 to present] Graduate Student Volunteer

Southeastern Women's Studies Association (SEWSA) **University of Mississippi**
[March 2019] Graduate Student Ambassador