AN EXPLORATION OF BEHAVIORAL AND AFFECTIVE DYSREGULATION IN A SAMPLE WITH CLINICAL BINGE EATING DISORDERS

A DISSERTATION SUBMITTED TO THE FACULTY OF THE ADLER SCHOOL OF PROFESSIONAL PSYCHOLOGY

BY

CHRISTINE REH

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PSYCHOLOGY

CHICAGO, IL DECEMBER, 2012

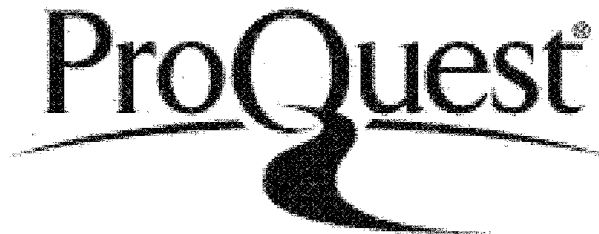
UMI Number: 3581657

All rights reserved

INFORMATION TO ALL USERS
The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript
and there are missing pages, these will be noted. Also, if material had to be removed,
a note will indicate the deletion.

UMI 3581657
Published by ProQuest LLC 2014. Copyright in the Dissertation held by the Author.
Microform Edition © ProQuest LLC.
All rights reserved. This work is protected against
unauthorized copying under Title 17, United States Code.



ProQuest LLC
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106-1346

ADLER SCHOOL OF PROFESSIONAL PSYCHOLOGY DISSERTATION COMMITTEE MEMBERS

Student's Name: Christine Reh

Dissertation Title: An Exploration of Behavioral and Affective Dysregulation in a Clinical Sample with Clinical Binge Eating Disorders

This dissertation has been defended and submitted for final submission

Certified by:

Name and Degree	Institution Affiliation
David Castro-Blanco, Ph.D. Dissertation Chair	Adler School of Professional Psychology
Eunice Chen, Ph.D. Dissertation Reader	Temple University
Wendy Paszkiewicz, Psy.D. Dissertation Reader	Adler School of Professional Psychology

Abstract

The present study examines two theories of the development of binge eating disorders among a clinical population with a diagnosis of Binge Eating Disorder and Bulimia Nervosa. Specifically, this study addresses whether a behavioral theory or affective theory predicts binge eating behavior in adult women. One theory draws upon Linehan's (1993) established trajectory from the experience of an invalidating childhood environment to the development of emotion dysregulation and subsequent Borderline Personality Disorder and the suicidal and para-suicidal behavior associated with BPD (Linehan, 1993; Mountford, Corstophine, Tomlinson, & Waller, 2007). The second examined theory is the dietary restraint theory which theorizes that a prolonged period of dietary restraint creates physiological and psychological deprivation that leads to dysregulation of appetite and vulnerability to binge eating (Polivy & Herman, 1985). It is hypothesized that an affective theory of the development of binge eating disorder will predict more binge eating behavior than a behavioral theory of binge eating behavior development. The sample is made up of baseline data gathered at a Chicago hospital and consists of participants in a randomized clinical trial for the treatment of an eating disorder. As a component of the screening evaluation, each participant was administered the Eating Disorder Evaluation-Questionnaire (EDE-Q), the Invalidating Childhood Environment Scale (ICES), and the Difficulties in

Emotion Regulation Scale (DERS). A regression analysis was conducted to analyze the relationship between dietary restraint, an invalidating childhood environment and binge eating behavior in adults. Based on the literature, there is evidence in support of both theories (Engelberg, Gauvin, & Steiger, 2005; Fairburn, 1997; Haslam, Mountford, Meyer, & Waller, 2008; Huon, 1996; Kaye, Gendall, & Strober, 1998; Killen et al., 1994; Killen et al., 1996; Mountford et al., 2007; Patton, Johnson-Sabine, Wood, Mann, & Wakeling, 1990; Polivy & Herman, 1985; Steiger et al., 2005; Stice, Killen, Hayword, & Taylor, 1998; Stice, Presnell, & Spangler, 2002; Wilson, Fairburn, Agras, Walsh, & Kraemer, 2002). This study adds a concurrent comparison of two theories. This study has implications for determining appropriate treatment for an individual with binge eating behavior based on their scores on the EDE-Q, ICES, and DERS and informing clinicians about treating BED, likely in the DSM-V.

Acknowledgements

My dissertation would not be complete without the assistance and guidance of my committee members, mentors and advisors, and support from friends and family members.

I would like to express my deepest and sincere gratitude to Dr. Eunice Chen for providing access to the data set utilized for this dissertation and for her selfless mentorship and support throughout my doctoral program. I would also like to thank Dr. David Castro-Blanco, my dissertation chair, for his constant support and encouragement every step of the dissertation process as he helped shape my dissertation. A special thank you goes to Dr. Wendy Paszkiewicz for stepping into my committee at the last minute and providing an additional perspective with which to think about my work. All three members of my committee, in his/her own way, provided me with the necessary support and encouragement to complete my dissertation. And for this, I am forever grateful.

I would like to thank my friends for providing me with encouragement every step to completion. Particularly, I would like to thank Kelsey Newell and Abby Damsky Brown for listening through the good and the bad. Finally, I would also like to express my deepest gratitude to my family. In particular, I would like to thank my mother, father, sister, brother, sister-in-law, and nephews for their unconditional confidence in my abilities to complete my dissertation. It was that confidence you had in me that pushed me through to the end.

Curriculum Vitae

Christine Reh, M.A.
2139 North Seminary Apt. 4
Chicago, IL 60614
314 322-1172
Christy.reh@gmail.com

EDUCATION

Adler School of Professional Psychology (Full APA-accreditation) **2007- 2014**
Chicago, Illinois
Doctoral Program in Clinical Psychology (Psy.D.)
Doctoral Concentration in Primary Care Psychology

Adler School of Professional Psychology **2007- 2010**
Chicago, Illinois
Master's of Arts in Counseling

DePaul University **2003-2007**
Chicago, Illinois
Bachelor of Arts in Psychology, Minor in Women's and Gender Studies
Graduated from Liberal Arts & Sciences and Psychology Honors Programs

PRACTICUM TRAINING

Adler Community Health Services **September 2013 – August 2014**
Pre-Doctoral Internship
Chicago, IL

- Managed all clinical services and acted as site supervisor at two clinical placement sites (North Lawndale Adult Transition Center and Rudy Lozano Leadership Academy)
    - This includes managing caseloads of all clinicians, managing waitlists, completing outcome data and volume data, managing relationships with community partner site staff.
- Provided individual therapy at Rudy Lozano Leadership Academy
- Provided group and individual therapy at North Lawndale ATC
- Completed crisis management at both clinical sites
- Supervised three doctoral externs (two therapy externs and one assessment extern)
- Managed clinical services externs performed at both clinical sites
- Completed three assessment batteries

- Presented didactic presentations to ACHS externs and staff at community partner sites

DePaul University Counseling Center **September 2010 - June 2011**
Doctoral Advanced Practicum
Chicago, IL
- Provide weekly therapy for young adult clients with varying diagnoses
- Perform intake interviews
- Co-facilitate weekly anxiety and depression therapy group
- Attend weekly didactics
- Facilitate outreach activities with various on-campus organizations and departments
- Receive weekly individual and group supervision

Primary supervisor: Bob Cavanagh
Total Hours: 375 (estimate to November 1, 2010)

John H. Stroger, Jr. Hospital of Cook County **July 2009 – May 2010**
Fantus Clinic
Doctoral Therapy Practicum
Chicago, IL
- Provided weekly therapy for eight adult clients with varying diagnoses primarily with Medicaid/Medicare or no access to insurance
- Provided weekly therapy for two adults with a diagnosis of Diabetes Type II and a co-morbid psychological disorder
- Consulted regularly with clients' psychiatrist and social workers regarding clients' care
- Performed 64 intake interviews
- Presented new clients to attending psychiatrists
- Performed Emergency Room consultations monthly
- Attended weekly didactics about working in a multi-disciplinary, medical setting
- Received weekly individual and group supervision

Primary supervisor: Jonathan Weinberg, Psy.D.
Total Hours: 787

University of Chicago Eating Disorders Program **June 2008 - July 2009**
Doctoral Assessment Practicum
Chicago, IL
- Received training on the Structured Clinical Interview for DSM Axis I

Disorders, Structured Clinical Interview for DSM Axis II Disorders, Eating Disorders Examination, Mini International Neuropsychiatric Interview-Kid Version, Longitudinal Interval Follow-up Evaluation, Suicide Attempt And Self-Injury Interview, Lifetime Parasuicide Count, and University of Washington Risk Assessment Protocol

- Received training on an Evidenced Based Practice Cognitive Behavioral Therapy for an eating disorder diagnosis
- Assessed adults, children and adolescents suffering from eating disorders for both research and clinical purposes
- Provided Cognitive-Behavioral therapy for two clients diagnosed with Binge Eating Disorder (Christopher Fairburn's Empirically Supported Treatment)
- Received extensive didactic training on the treatment and assessment of eating disorders
- Attended weekly clinical rounds meetings with medical doctors, psychiatrists, and social workers
- Took weight and height and assessed Body Mass Index and Ideal Body Weight for every client
- Assessed if each client is medically stable or needs referral based on client self-report
- Communicated regularly with psychiatrist and medical doctors on site
- Received weekly group supervision and individual supervision every 2 weeks with licensed clinical psychologist

Primary supervisor: Eunice Chen, Ph.D.
Total Hours: 618.5

Brother David Darst Center for Justice and Peace, January 2008 - June 2008
Spirituality and Education
Community Service Practicum
Chicago, IL

- The Adler School of Professional Psychology requires a non-clinical community service practicum to teach students the effects of socio-cultural systems on individual functioning and to help students learn the role of psychologists in creating social change
- Led college and high school aged students on service immersion experiences in the Chicago area
- Facilitated reflection on issues of social justice and working with persons who are poor
- Educated students on economic and social issues the city of Chicago faces
- Conducted a research project on the psychology of a service immersion

Received weekly supervision

Primary supervisor: Mindy Rueden, M.A.
Total Hours: 250

PROFESSIONAL EXPERIENCE

National Association of Anorexia Nervosa and Associated Disorders **August 2006 - August 2007**
Undergraduate Non-paid Internship
Chicago, IL

- Demonstrated crisis intervention by answering crisis hotline phone calls and emails
- Served as group facilitator for an eating disorders support group, assisting in treatment process
- Implemented research project as a follow up to previous research project at organization
- Implemented and executed a Junior Board and served as President overseeing fundraising and awareness raising activities once a month
- Organized the Chicago Eating Disorders Awareness Week activities

Received weekly supervision
Primary supervisor: Chris Athas

DePaul University Ministry **August 2008 - June 2007**
Service Immersion Co-Coordinator **January 2008 - June 2008**
Chicago, IL

- Implemented training program for student leaders and staff mentors
- Served as liaison between students, family, staff, DePaul University Ministry, and site contacts in 14 different cities across the country and South and Central America
- Presented information sessions to interested students throughout academic year
- Managed 100 students involved in the program in both winter and spring including paperwork, training, and payments
- Planned and executed weekly student leader and pre-trip meetings and group reflections to prepare students for the immersion experience
- Planned and executed post-trip reflections, reunions and programs
- Nominated for Student Employee of the Year by Supervisor and Director of University Ministry
- Hired as part-time service immersion co-coordinator temporarily when extra help needed
- Received weekly supervision

Primary supervisor: Casey Bowles, M.A.

RESEARCH EXPERIENCE

Adler School of Professional Psychology **January 2010 - 2014**
Doctoral Dissertation
Chicago IL

- Working title: Testing the Invalidating childhood environments theory and dietary restraint theory for the development of eating disorder psychopathology
- Dissertation Chair: David Castro-Blanco, Ph.D.
- Committee Members: Eunice Chen, Ph.D. and Wendy Paszkiewicz, Psy.D.

DePaul Center for Community Research **September 2006 - June 2007**
Research Assistant, DePaul University
Chicago IL

- Completed honors senior thesis paper on project to graduate with Honors in Psychology
- Worked 6-10 hours weekly
- Collaborated on a research project presented at a the International Association of Chronic Fatigue Syndrome and the Midwest Psychological Association Conference and published in the Journal of Disability Policy Studies
- Conducted extensive literature review
- Collaborated on experimental set-up
- Collaborated and assisted with participant recruitment
- Conducted phone interviews to participants with a diagnosis of Chronic Fatigue Syndrome administering the SCID-I, Multidimensional Fatigue Inventory, Brief Symptom Inventory, Medical Outcomes Survey-Short Form-36, and the CDC Symptom Inventory
- Created web survey for participants to fill out
- Analyzed data collected from the web survey and phone interviews
- Scored instruments
- Interpreted results
- Attended weekly research team meetings

Primary Investigator: Leonard Jason, Ph.D.

PUBLICATION

Jason, L.A., Najar, N., Porter, N., **Reh, C**. (2009). Evaluating the centers for disease control's empirical chronic fatigue syndrome case definition. Journal of Disability Policy Studies, 20, pp. 93-100.

PANEL DISCUSSION

Torres-Harding, S., Alvarez, J., Hidalgo, M., Marshall, C., Felczak, J., Nappe, D., Boan, B., Borrilez, A., Boyd, M., Erawan-Coppage, E., Fox, J., **Reh, C**. (May 2008). "Integrating community psychology principles with clinical work." Panel Discussion presented at the Midwestern Psychological Association Annual Convention. Chicago, IL.

POSTER PRESENTATIONS

Reh, C. (2008, December). The psychology of a service immersion. Poster session presented at the Adler School of Professional Psychology Community Service Practicum Poster Session. Chicago, IL.

- Awarded scholarship from judges to present at a professional conference

Boan, B.K, Borrilez, A., Boyd, M., Erawan-Coppage, E., **Reh, C**., & Alvarez, J. (2008). When counseling is not enough: Training in socially responsible practice. Poster session presented at the Illinois Counseling Association Annual Convention. Tinley Park, IL.

Reh, C. (2007). Evaluating the Center for Disease Control's new case definition. Poster session presented at DePaul University's Annual Psychology Night, Chicago IL.

Reh, C. (2007). The National Association of Anorexia Nervosa. Poster session presented at DePaul University's Annual Psychology Night, Chicago IL.

MEDIA PRESENTATION

McInerney, J. (Producer). (2008, November). IPAGS, Illinois Psychological Association Graduate Students. [Behavioral Health Update with Dr. Joe Troiani] Chicago, IL: Intimetv.com.

TEACHING EXPERIENCE

Adler School of Professional Psychology **April 2012 - July 2013**
Teaching Assistant
Chicago, IL

WORKSHOPS AND TRAINING

Illinois Psychological Association Annual Conference (2009). Chicago, IL.
Illinois Counseling Association Annual Conference (2008). Chicago, IL.
Midwest Psychological Association Annual Conference (2008). Chicago, IL.

SUPERVISION EXPERIENCE

Adler Community Health Services **September 2013 – August 2014**
Extern Supervisor
Chicago, IL

- Provided weekly secondary supervision of two beginning therapy externs and one assessment extern
- Listened to therapy tapes of both therapy externs and provided feedback on their clinical skills
- Reviewed assessment scoring and reports before the extern submitted them to her primary supervisor
- Evaluated all externs formally three times during the year
- Supervision of supervision provided weekly by Dan Barnes, Ph.D.

University of Chicago Hospital Eating Disorders Program **May 2009 - July 2009**
Extern Supervisor
Chicago, IL.

- Trained new externs on standard assessment measures
- Supervised externs under the supervision of Eunice Chen, Ph.D.
- Led and conducted weekly group supervision meetings and didactics
- Approved and corrected assessment reports
- Regularly communicated with Dr. Eunice Chen and externs
- 5-10 hours per week

STUDENT LEADERSHIP

APAGS Campus Representative **August 2008 - August 2010**

- Disseminate information about important legislative activity
- Educate students about how to advocate on behalf of psychology and to support legislation
- Inform students about joining professional organizations and help them sign up for APAGS
- Communicate with IPA and IPAGS regularly
- Communicate with State and Regional leaders of APAGS
- Recognized as Outstanding Campus Representative, March 2009

Adler School of Professional Psychology **January 2010 - August 2011**
Psychologists for Social Responsibility Student Chapter

- Founded Adler School of Professional Psychology student chapter in January 2010
- Communicate with existing social responsibility committees, organizations, and leadership to coordinate efforts to solidify and increase social responsibility on campus
- Communicate with faculty, administration, and students regarding the needs on campus
- Create a safe environment for students to discuss what it means to be a socially responsible graduate student
- Serve as a liaison for future social responsibility events and task forces
- Organize monthly events on campus

COMMUNITY SERVICE/VOLUNTEER WORK

Haymarket Center **November 2008 - December 2008**
Parenting Instructor
Chicago, IL

- Planned weekly hour-long parenting classes as part of the Child Guidance and Parenting Course required at the Adler School of Professional Psychology
- Co-led an 8 week parenting program for a diverse group of participants in a substance abuse program

Faculty supervisor: Sharyl Trail, Psy.D.

DePaul Community Service Association, **August 2004 - December 2006**
Co-Coordinator and Senior Team Leader
Chicago IL

- Served as senior-team leader planning and coordinating all student leaders involved in the organization consisting of student run weekly service organizations
- Served as co-coordinator for two academic years leading a weekly service organization to two schools in underserved Chicago neighborhoods
- Acted as liaison between program director, teachers and other tutors through written, telephone and direct verbal communication
- Served as leader of fellow students by training and facilitating reflection after weekly service
- Fostered a secure learning environment through individual attention and responsiveness to student's needs
- Assessed the students' needs and trained tutors accordingly

Interfaith Youth Corps **August 2004 - June 2005**
Chicago Youth Council Member
Chicago IL
- Trained as a facilitator and mentor for high school students in interfaith dialogue
- Tutored Somalian Bantu refugees in English
- Wrote a children's book for the Somalian Bantu children utilized by the Interfaith Youth Corps
- Planned and facilitated interfaith dialogue at Martin Luther King Day of Service and two National Days of Interfaith Youth Service

Intercommunity Housing Association **July 2004 - August 2004**
Director of Summer Camp
St. Louis, MO
- Directed twenty-five inner city children ranging in age from 5-17 daily for three weeks
- Served as supervisor for camp counselors
- Conducted daily itineraries and rehearsal schedules
- Directed the children in the performance of a musical performed at the conclusion of camp
- Conducted sessions on important values and social issues
- Supervised daily afternoon field trips
- Communicated with parents daily

ACADEMIC & PROFESSIONAL HONORS

St. Vincent DePaul Award: DePaul University **2007**
Highest award given to graduating senior at DePaul University

Father Egan Award: DePaul University **2007**
Given to two graduating students for efforts in community service and social justice

Outstanding Senior Leader Award: DePaul University **2007**

President's Volunteer Service Award: **2006**
National Society of Collegiate Scholars
- Given for performing 100 hours of service within 12 months

Scholar of Promise: National Society of Collegiate Scholars **2006**
- Given for performing 50 hours of service dedicated to serving youth

PROFESSIONAL AFFILLIATIONS AND MEMBERSHIPS

Psi Chi: Psychology Honors Society
American Psychological Association of Graduate Students: Member, Campus Representative
Illinois Psychological Association of Graduate Students: Active Member Division
Academy of Eating Disorders: Student affiliate
Psychologists for Social Responsibility: Student affiliate
National Society of Collegiate Scholars: Academic Honors Society
Golden Key Honors Society: Academic Honors Society
Phi Kappa Phi: Academic Honors Society (top 7% of class at DePaul University)
National Association of Anorexia Nervosa and Associated Disorders: Member Board of Directors 2006-2009 and President of Junior Board of Directors 2006-2009
National Eating Disorders Association: Student affiliate

Table of Contents

Section	Page
Title Page	1
Committee Page	2
Abstract	3
Acknowledgements	i
Curriculum Vitae	ii
Table of Contents	xii
List of Tables	xiii
Chapter I: Introduction	5
Chapter II: Review of the Literature	9
Chapter III: Methodology	23
Chapter IV: Results	29
Chapter V: Discussion	32
References	38
Tables	46
Appendix A: Informed Consent	51
Appendix B: IRB Approval	59
Appendix C: Letter Approving Access to Database	60

LIST OF TABLES

Table Page

1. Summary of Regression Analyses for Variables Predicting Objective Binge Eating Episodes........ 46
2. Summary of Regression Analyses for Variables Predicting Purging Behaviors 47
3. Regression Analyses in Final Model to Test Whether Scales on the ICES, EDE-Q, and DERS Predict Binge Eating Episodes When Controlling for Demographic Variables 48
4. Results of Regression Analyses In Final Model to Test Whether Scales on the ICES and EDE-Q Predict Purging Episodes When Controlling for Demographic Variables 49
5. Results of Regression Analyses to Test Whether Scales on the ICES and EDE-Q Predict Purging Episodes When Controlling for Demographic Variables 50

An Exploration of Behavioral and Affective Dysregulation in a Sample with Clinical Binge Eating Disorders

Chapter 1: Introduction

The examination of the factors associated with the development of eating disorders is extensive. Biological, psychological, and social factors have demonstrated an association with the development of eating disorders (Johnson, Cohen, Kasen, & Brook, 2002; Striegel-Moore & Cachelin, 2001). The family environment is a particularly relevant factor in the study of the development of eating disorders with the first mention of familial contribution to eating disorders dating back to the 19th century (le Grange, Lock, Loeb, & Nicholls, 2010). The field is largely divided in regards to the family's role in the development and maintenance of eating disorders. This study attempts to enhance the current knowledge by comparing two theories concurrently that reflects the division in the field. Specifically, this study will test the relationship between two existing theories about the development of an eating disorder, namely, the invalidating childhood environment theory and the dietary restraint theory (Leung, Schwartzmann, & Stieger, 1996; Mountford, Corstophine, Tomlinson, & Waller, 2007; Schmidt, Humfress, & Treasure, 1998). No study currently exists testing the two theories simultaneously.

The invalidating childhood experience theory draws upon Linehan's (1993) established trajectory from the experience of an invalidating childhood

environment to the development of Borderline Personality Disorder and subsequent suicidal and para-suicidal behavior (Mountford, et al., 2007; Linehan, 1993). Linehan (1993) utilized this established trajectory to develop a treatment modality called Dialectical Behavioral Therapy (DBT). The development of DBT was directly informed by the previously established trajectory from an invalidating childhood environment to the development of BPD and has thus been shown to be efficacious for its treatment (Linehan et al., 2006). To date, two studies have investigated the relationship between an invalidating childhood environment and the development of eating disorders and results indicate a relationship between the two constructs (Haslam, Mountford, Meyer, & Waller, 2008; Mountford et al., 2007).

A recent review criticized the argument that parental behaviors play a causal role in the development of eating disorders. The authors argue that the current correlational evidence is not sufficient and argue that the family environment is secondary and less relevant to other etiological factors (le Grange et al., 2010). The authors cited historical paradigm shifts in the field of eating disorder treatment that reflect the family as a possible enhancement to treatment as opposed to a contributor to the development of the eating disorder (le Grange et al., 2010).

Linehan's (1993) theory and treatment modality differs significantly from the most dominant form of treatment for eating disorders: Cognitive-Behavioral

Therapy (CBT). While DBT utilizes an emotional construct to explain the development of binge eating disorder, CBT utilizes a behavioral construct, namely, the dietary restraint theory. Polivy and Herman (1985) originally established the dietary restraint theory in 1985. The authors theorize that a period of prolonged dietary restraint creates physiological and psychological deprivation leading to dysregulation in appetite and subsequent binge eating. Chronic hunger experienced by dieters physiologically creates a vulnerability to binge eating when control over eating behaviors shifts from physiological to cognitive control. The psychological control is much more vulnerable to disruption by distorted thoughts and negative emotional experiences (Polivy & Herman, 1985). Fairburn further added to this theory by purporting that dieting contributes to the maintenance of binge eating. The violation of strict dietary rules can lead to temporary desertion of dietary restriction and subsequent binge eating, called the abstinence-violation effect (Fairburn, Welch, Doll, Davies, & O'Connor, 1997; Marlatt & Gordon, 1985). Dieting also increases negative affect and binge eating can serve as a mood regulator. The dietary restraint theory is supported by retrospective studies documenting the relationship between binging and dietary restraint and experimental studies showing that caloric deprivation results in subsequent binging (Stice, 2002). However, recent studies show mixed results and certain studies have not demonstrated a significant relationship between dietary restraint and binge eating (Spoor et al., 2006).

The dietary restraint theory is based on a behavioral construct. While eating disturbances are the primary symptoms of eating disorders, examining the eating behavior is not sufficient to explain these complex disorders. Therefore, other theories have emerged attempting to identify the psychological risk factors for eating disorder psychopathology to create a comprehensive theory of the development of eating disorder psychopathology.

This study will build on the work on Mountford et al. (2007) and Haslam et al. (2008) that studied whether or not there is a significant relationship between invalidating childhood environments and eating disorder pathology, including diagnoses and patterns of disordered eating. This study also builds upon the work of Linehan (1993) and attempts to investigate the relationship of an invalidating childhood experience and the development of eating disorder pathology. The study will test the two aforementioned theories simultaneously to attempt to identify constructs that better predict more binge eating in a clinical population. It is hypothesized that the experience of an invalidating childhood in conjunction with the development will predict binge eating more significantly than dietary restriction. Further, it is hypothesized that those who have developed poor emotion regulation skills in conjunction with an invalidating childhood environment will result in greater binge eating.

Chapter II: Review of the Literature

The dietary restriction theory and invalidating childhood environment theories address the etiology of eating disorder psychopathology. Both theories attempt to apply a theory that addresses the complex nature of eating disorders that consist of behavioral, emotional and cognitive symptoms to aid in the successful development and implementation of treatment modalities. This study concurrently examines both theories among a clinical sample. Both theories have been applied to eating disorder psychopathology and demonstrated a relationship to binge eating behavior (Fairburn et al., 1997; Haslam et al., 2008; Marlatt & Gordon, 1985; Mountford et al., 2007; Stice, 2002).

Polivy and Herman (1985) originally posited the dietary restraint theory in 1985. The authors purported that dieting causes binge eating. The authors' research showed that dieters exhibit a pattern of eating in which dieters would maintain their low caloric intake following two laboratory conditions of low or no calorie meals but ate a large amount of food after a large, high calorie pre-meal. The authors called this counter-regulation. In contrast, non-dieters demonstrated normal food regulation eating significantly more food in the laboratory conditions when they were given no food or a small meal rather than when they were given a large meal. The authors argued that the dieters were triggered by the large, high-calorie meal before going into the lab thus illustrating the cognitive phenomena of "blown the diet" thinking (Polivy & Herman, 1985).

As a result of their study, Polivy and Herman (1985) argued that there is a physiological component of the connection between dieting and binge eating. They theorized that successful dieting often results in chronic hunger that is particularly true when an individual diets to a point below his/her genetic set-point weight. At this low weight, they argued that the body could be attempting to restore the individual's weight to a more biologically acceptable level by means of binge eating, which may be disparate from the cultural or socially desired weight of the individual (Polivy & Herman, 1985).

The physiological connection between dietary restriction and binge eating has also been investigated in the field of eating disorders. Kaye, Gendall, and Strober (1998) identified the role that dieting plays in the depletion of tryptophan, which is a precursor to serotonin. This depletion increases the risk of a dieter to eat high-carbohydrate foods to restore levels of tryptophan (Kaye et al., 1998). Liebowitz (1986) established that serotonin is the neurotransmitter that regulates appetite and eating. It is specifically involved in satiety and the ability for an individual to cease eating during a meal. Serotonin is directly dependent on tryptophan (Gendall & Joyce, 2000). Steiger et al. (2005) investigated the effects of serotonin on binge eating. They found that the effects of serotonin activity, as measured through platelets, moderated the consequences of binging upon restraint. Thus, women with less depletion of serotonin had lower restraint than individuals with higher depletion of serotonin. (Steiger et al., 2005). Although a

relationship has been identified, more sophisticated research is needed to clarify the relationship between tryptophan levels and binge eating.

The dietary restraint theory also addresses the cognitive factors that play a pivotal role in the maintenance of binge eating. Weight loss and self-starvation increase preoccupation with food and ultimately dominate the dieter's thoughts. The preoccupation also results in dichotomous thinking such as labeling foods "good" and "bad" and "blown the diet" thinking where an individual breaks a strict dietary rule and subsequently binges since he/she has "blown the diet. The result is greater cognitive control over hunger instead of physiological control. The dieter learns to suppress, ignore, or distort physiological hunger and instead focus on the cognitive control. It is argued that this pattern of binging and overeating emerges as a result of these cognitive and physiological factors characteristic of dieting (Polivy & Herman, 1993). The dietary restraint model directly informs Fairburn's cognitive behavioral therapy (CBT) for eating disorders. It is shown that the reduction of dietary restraint utilizing Fairburn's CBT is associated with post-treatment improvement in binge eating (Wilson, Fairburn, Agras, Walsh, & Kraemer, 2002)

The connection between dietary restraint and binge eating has been widely studied. Several researchers agree that dieting is a potent risk factor for the development of binge eating disorders although results have been mixed (Fairburn, 1997; Huon, 1996; Lowe, Gleaves, & Murphy-Eberenz, 1998; Polivy

& Herman, 1985; Polivy & Herman, 1993; Spoor et al., 2006). Prospective studies showed that dietary restraint was a significant risk factor for the development of binge eating among individuals with no binge eating symptoms (Stice, Killen, Hayward, & Taylor, 1998; Stice, Presnell, & Spangler, 2002). A longitudinal study conducted in London with adolescent girls found that almost all of the participants who developed eating disorder pathology had previously been dieters (Patton, Johnson-Sabine, Wood, Mann, & Wakeling, 1990) Dieting has also predicted an increase in bulimic symptoms (Killen et al., 1994; Killen et al., 1996).

A recent study by Engelberg, Gauvin, and Steiger (2005) utilized ecological momentary assessment (EMA) using an electronic self-monitoring diary (ESMD) on Palm Pilots to measure daily dietary restraint and the urge to binge before and after a binge episode. Thirty-nine female participants recorded every eating episode she experienced and indicated whether it was a binge, heavy meal, average-sized meal, light meal, or snack. Items also assessed for the urge to binge and dietary restraint. Results indicated that restraint was higher on non-binge days and preceded increases in the urge to binge. The authors hypothesized that restraint created a susceptibility to binge episodes but did not trigger a binge. This suggests that dieting and restraint are not reliably linked to actual binge episodes but rather make an individual more susceptible to an urge to binge. This suggests that other mechanisms trigger the binge (e.g., emotional distress)

(Engelberg et al., 2005). Steiger et al. (2005) found similar results on their study utilizing EMA. Their results indicated that dietary restraint increased later in the day and that restraint was elevated before a binge and significantly increased following a binge (Steiger et al., 2005).

It is important to address the inconsistency in demonstrating a relationship between dietary restraint and binge eating. The literature shows that some studies did not find a significant relationship between dieting and binge eating and some experimental studies demonstrated that placing individuals on low-calorie diets actually results in a greater decrease in binge eating than individuals on a wait-list control group (Lowe, Gleaves, & Murphy-Eberenz, 1998; Spoor et al., 2006). Spoor et al. (2006) conducted a study to explore the relationship between binge eating and dieting and found no support for the relationship between dietary restraint and future binge eating episodes. Further, no support was found that binge eating predicted future increases in dietary restraint, nor was support found that binge eating and dieting are reciprocally related. The inconsistency in the literature could be attributed to factors associated with the sample unrelated to binge eating. It is important to note that Spoor et al.'s (2006) sample was comprised of young adults and previous studies have primarily used mid-adolescents. It could be argued that restraint predicts binge eating in certain age groups. More research is needed with different age samples to test whether the dietary restraint theory is predictive of binge eating in different age groups (Spoor

et al., 2006).

While the dietary restraint theory addresses the behavioral and cognitive aspects of eating disorder psychopathology, it does not directly address affective factors. Polivy and Herman (1985) briefly addressed that dieters ate more when they were experiencing distress and argued that the food served the purpose of regulating mood but did not go into further detail. The invalidating childhood environment theory directly addresses the behavioral and affective aspects of eating disorder psychopathology.

Linehan (1993) originally proposed the concept of emotional invalidation for individuals with Borderline Personality Disorder in the Dialectical Behavioral Therapy model. Linehan (1993) defined an invalidating childhood environment as one where a parent ignores or negatively reacts to communication by the child. There is an over-emphasis on positive emotions and on quickly resolving negative emotions regardless of the magnitude of a situation. The expression of negative emotion is greatly discouraged. Linehan (1993) described three types of invalidating environments: the chaotic environment, the perfect environment, and the typical environment. The chaotic environment is an environment in which parents or authority figures are emotionally unavailable or absent due to factors like substance abuse, mental illness, financial issues, or work schedules. The typical response to children is anger when a child seeks emotional support. The perfect environment is an environment in which the typical response is anger or

distress to a child's display of negative affect. The typical environment is an environment in which great emphasis is placed on achievement and emotional control. Success is viewed as imperative and children are to behave like adults (Linehan, 1993). As a result of these invalidating environments, the child learns to suppress or block emotions because it is seen as desirable by the parent or authority figure. Linehan (1993) noted that these environments can occur simultaneously and that the presence of a validating adult in any aspect of a child's life may serve as a protective factor from the invalidating adults (Linehan, 1993; Waller, Corstorphine, & Mountford, 2007).

Developmental literature suggests that parental response to a child's display of affect has a cumulative and powerful influence over a child's subsequent perception, expression, and regulation of affect (Krause, Mendelsen, & Lynch, 2003). Positive and encouraging parental response to a child's emotional expression results in positive social and emotional outcomes while invalidating environments are linked to social and emotional problems in childhood (Krause et al., 2003). Problems in distress tolerance and avoidance of negative affect are cumulative results of an invalidating childhood environment (Waller et al., 2007). The child is not taught how to tolerate emotional distress and cannot cope with negative affect. The pattern becomes self-maintaining as the child eventually learns to invalidate his/her own emotional experiences telling him/her that his/her emotional experiences are incorrect (Haslam et al., 2008). As

a result, the child develops impulsive and compulsive coping mechanisms for strong affective experiences (Mountford et al., 2007).

Krause et al. (2003) identified a link between invalidating childhood environments and adult psychopathology. Utilizing a structural equation model, the study found that parent distress, parent minimization, and parent punishment were all highly inter-correlated and significantly associated with emotional ambivalence and psychological abuse. Invalidation had a significant and direct effect on the mediator inhibition ($\beta = .62$, $p < .01$) and inhibition had a significant and direct effect on the outcome of distress ($\beta = .80$, $p < .001$). Further, the indirect effect of invalidation on distress was significant (parameter estimate = .50, $p < .01$). Emotional invalidation mediated the relationship between an invalidating childhood environment and acute psychological distress in adulthood. The recollection of these experiences was associated with emotional inhibition, thought suppression, and chronic avoidant responses to negative and distressing emotional situations (Krause et al., 2003).

Invalidating childhood environments contribute to impulsivity and self-denial in the development of Borderline Personality Disorder (Linehan, 1993). Individuals with BPD are more likely to initiate behaviors that reflect emotional pain putting them at higher risk for self-injury and suicidal behavior which are impulsive, reactive responses to negative affective experiences (Linehan, 1993). Borderline Personality Disorder and eating disorders both involve emotion

dysregulation and difficulties in distress tolerance with a tendency toward impulsive and compulsive coping mechanisms. Behaviors associated with eating disorders are not as episodic as suicidal and self-harm but both tend to be triggered by situation and exacerbated by distress. There is a link between emotional state behaviors (McManuns & Waller, 1995; Meyer, Waller, & Waters, 1998) and eating behavior in which eating behaviors serve the purpose of managing strong affect (Root & Fallon, 1988; van der Kolk & Fisler, 1994). Individuals with eating disorders utilize impulsive behaviors like binge eating and purging and compulsive behaviors like dietary restriction and compulsive exercise to manage strong affect (Haslam et al., 2008).

The associations between an invalidating childhood environment and difficulties in distress tolerance and avoidance of affect in the eating disorders led Mountford et al. (2007) to develop a measurement to assess for the experience of an invalidating childhood experience as defined by Linehan (1993) in the eating disorders. The authors argued that an invalidating childhood environment may provide a framework to understand the emotional difficulties individuals with eating disorders experience. The sample included 73 women with eating disorders: 20 women with a diagnosis of Anorexia Nervosa (AN); 25 women with a diagnosis of Bulimia Nervosa (BN); and 28 women with a diagnosis of Eating Disorder, Not Otherwise Specified (ED-NOS) and 62 women without eating disorders recruited from an undergraduate British university (Mountford et al.,

2007).

Each participant was assessed by an experienced clinician at a specialized eating disorder unit and diagnosed utilizing the Eating Disorder Inventory (EDI). Twenty-three items were utilized in this study to make up three subscales addressing eating, weight, and shape (drive for thinness, bulimia, and body dissatisfaction). Higher scores on the EDI are associated with greater eating disturbance. The authors also utilized the Distress Tolerance Scale (DTS), which was developed by the authors for this study to assess an individual's ability to tolerate emotional states. A higher score on one subscale indicates that an individual utilizes a greater use of a specific method of coping with affect (Mountford et al., 2007).

The authors also developed the Invalidating Childhood Environment Scale (ICES). The measure was designed to represent the overall construct of invalidation in childhood. It consists of 22 self-report items. Fourteen items measure parental behaviors that represent a specific family style addressing the eight themes that define an invalidating childhood environment (ignore thoughts and judgments, ignore emotions, negate thoughts and judgments, negate emotions, over-react to emotions, overestimate problem solving, over-react to thoughts and judgments and oversimplify problems). Participants rate their experience up to the age of 18 based on a 5-point Likert scale for each parent. The level of perceived invalidation by each parent is given a mean score from the 14

items and a higher score indicates a greater level of perceived invalidation from that parent. The final four items represent the three types of invalidating childhood environments proposed by Linehan (typical, perfect, and chaotic) and one description of a validating childhood environment (Linehan, 1993; Mountford et al., 2007).

Results indicated that individuals with eating disorders had a greater level of perceived childhood invalidation by both parents than the non-clinical group. Paternal invalidation was particularly high in the clinical group ($t = 5.12, p < .001$). The clinical group had significantly higher ratings on the three invalidating family styles and lower levels of perceived validation on the ICES. The clinical group also reported both parents as invalidating, saw their families as high in invalidation and reported lower levels of validation. Bulimic attitudes were positively associated with perceived paternal invalidation in the non-clinical sample and negatively associated with perceived validation (Mountford et al., 2007).

Both the clinical and non-clinical group demonstrated strong associations between invalidating childhood environments and the avoidance of affect scale on the DTS. There was a lower use of avoidance when participants perceived their childhood as validating. Interestingly, the parental behaviors associated with the avoidance of affect were attributed to mothers in the non-clinical group and to fathers in the clinical group (Mountford et al., 2007).

The only reliable associations of independent and mediating variables were between paternal invalidation and avoidant coping styles on the DTS. This indicated that avoidant distress tolerance acts as a partial mediator between paternal invalidation and eating disorder pathology. This fits with a model that demonstrates that perceived paternal invalidation results in the avoidance of distress and then eating disorder pathology. This is an incomplete model and further mediators need to be identified (Mountford et al., 2007).

The authors' hypothesis was supported that a perceived invalidating childhood environment was associated with an eating disorder in adulthood and that the presence of a validating childhood environment serves as a protective factor. Overall, the authors found a significant association between an invalidating childhood environment and difficulties in tolerating distress and individuals who perceived their childhood were more likely to use avoidance of affect for distress tolerance (Mountford et al., 2007).

Haslam et al. (2008) extended upon the work of Mountford et al. (2007) by utilizing a clinical sample to assess the association between an invalidating childhood environment and eating disorder pathology. The sample consisted of 58 participants (55 female and 3 male). Participants had a diagnosis of BN (37) or AN (21). They were given a booklet of assessments including the Eating Disorder Examination-Questionnaire (EDE-Q) and the ICES. The authors utilized a multivariate analysis of covariance (MANCOVA) to assess whether perceived

levels of childhood invalidation differed across diagnostic groups and to assess the comparison of ICES scores and objective binging, vomiting, laxative use, and excessive exercise for weight control. Regression analyses were also utilized to assess the relationship between invalidating childhood environments and eating pathology (Haslam et al., 2008).

Results indicated that individuals with a diagnosis of BN had a greater perceived level of childhood invalidation than those with a diagnosis of AN. No other differences between diagnoses were significant. There were no associations between an invalidating childhood environment and restraint, weight concern, shape concern, or eating concern. No ICES scale was associated with laxative abuse. Paternal invalidation was significantly associated with vomiting ($F = 3.82$; $p < .05$) and a "typical" family style (the emotionally controlled, high achieving family) was associated with excessive exercise ($F = 8.12$; $p < .01$). Maternal invalidation was associated with a lower likelihood of binging ($F = 5.92$; $p < .05$) which the authors hypothesized could suggest that maternal invalidation could be associated with food restriction, not measured by the EDE-Q. Consistent with Mountford et al., (2007) the authors found that individuals with BN perceived more paternal invalidation than those with AN (Haslam et al., 2008).

The data of this study supports the hypothesis that individuals with BN perceive the greatest level of invalidation, particularly from their fathers. Although invalidating experiences were not associated with the EDE-Q scales,

they were associated with some behaviors associated with BN. Impulsive behaviors like vomiting and excessive exercise are associated with perceived childhood invalidation suggesting that these behaviors could serve to suppress emotion (Haslam et al., 2008).

While both theories demonstrated a relationship with the development of eating disorder psychopathology, more sophisticated research is needed to determine the constructs that mediate the relationship between specific variables and the subsequent development of an eating disorder. The invalidating childhood environment and dietary restraint theories provide a preliminary theoretical foundation for clinicians to choose the most appropriate treatment modalities for individuals with eating disorders.

Chapter III: Methodology

Participants

A total of 105 participants with a diagnosis of BN or BED were recruited as a part of a National Institute of Mental Health funded randomized controlled trial at the University of Chicago Hospital's Eating Disorders Program in Chicago, Illinois from the year 2006-2010. The participants were recruited utilizing advertisements on and around the University of Chicago campus and greater Chicago-land area as well as in local newspapers, magazines, local treatment centers and support groups.

Procedure

All participants completed an initial screening assessment performed by trained assessors and was diagnosed with Bulimia Nervosa or the research criteria for Binge Eating Disorder according to the *Diagnostic and Statistical Manual IV-Text Revision*. The diagnosis was determined utilizing the Eating Disorder Examination. The initial screening assessment also consisted of the Structured Interview for the DSM-IV (SCID-I) and the Treatment History Questionnaire. Participants with Eating Disorder-Not Otherwise Specified (except for BED) and who met criteria for severe substance abuse or a psychotic disorder were not accepted into this study. After the initial screening assessment, participants were given a link to take online versions of the Invalidating Childhood Environment Scale (ICES), Eating Disorder Examination-Questionnaire (EDE-Q), the

Difficulties in Emotion Regulation Scale (DERS) and a survey of basic demographic variables.

Instruments

Invalidating Childhood Environment Scale. The Invalidating Childhood Environment Scale (ICES) is a self-report questionnaire that measures the overall construct of an invalidating childhood environment as defined by Linehan (1993). Participants are asked to rank level of perceived invalidation by each parent separately on a 5 point Likert scale (1 = never, 5 = all the time) up to the age of 18. The measure consists of 18 items. Fourteen items measure specific parental behaviors associated with the 8 themes identified by Linehan (1993) that define an invalidating environment: ignore thoughts and judgments, ignore emotions, negate thoughts and judgments, negate emotions, over-react to emotions, overestimate problem solving, over-react to thoughts and judgments, over-simplify problems. The mean score is then calculated for each parent separately. Higher scores represent greater perceived invalidation by that parent. The final four items assess the overall perception of an individual's childhood environment. They consist of a description of one validating family style and three family styles considered to be invalidating according to Linehan (1993): typical, perfect, and chaotic. Participants are asked to rank the four styles utilizing a 5-point Likert scale (1 = not like my family, 5 = like my family all the time). The mean score is calculated for each family style. Higher mean scores on a particular family style

indicates greater perceived levels of the validating or invalidating family style (Mountford et al., 2007).

Mountford et al. (2007) tested the internal consistency of the ICES scales. The maternal and paternal invalidation scales demonstrated good levels of internal consistency in a clinical group (α= 0.796 and 0.772 respectively). In the non-clinical group, the internal consistency levels of maternal and paternal invalidation were less substantial (paternal invalidation α= 0.587; maternal invalidation α= 0.664). The discriminant validity of the ICES scales was also demonstrated for the clinical group and non-clinical group (Mountford et al., 2007).

Eating Disorder Examination- Questionnaire. The Eating Disorder Examination – Questionnaire (EDE-Q) is the self-report version of the Eating Disorder Examination (EDE), a semi-structured interview that assesses current eating disorder symptoms over the past four weeks (Fairburn & Cooper, 1993). The EDE is considered the most widely used instrument in the field of eating disorders and is often considered the most distinguished eating disorder assessment (Berg, Peterson, Frazier, & Crow, 2012). This study utilizes the EDE-Q as the primary source for eating disorder diagnosis. The EDE-Q has four subscales (weight concern, eating concern, restraint, and shape concern). These four subscales represent the core symptomatology of eating disorders. The EDE-Q also includes frequency measures of binge eating and compensatory behavior

for diagnostic purposes. Items on the EDE-Q and the four subscales are scored on a scale of 0 (low pathology) to 6 (severe pathology). Binge eating will be measured using the binge frequency item on the EDE-Q and the EDE-Q restraint subscale will be utilized to measure dietary restraint.

The EDE-Q has shown good levels of internal consistency (Peterson et al., 2007). The test-retest reliability for the EDE-Q has yielded significant correlations for the four subscales (correlation ranging from 0.66 to 0.94) the diagnostic behavioral items (correlation ranging from 0.51 to 0.92), and the individual items that make up the four subscales (correlations ranging from 0.40 for fear of weight gain to 0.78 for importance of shape and reaction to prescribed weighing) (Berg et al., 2012). The EDE-Q has also demonstrated good temporal stability with one study demonstrating that every item was significant at time one and time two with correlations ranging from 0.42 to 0.69. The internal consistency of the EDE-Q has been tested in four different studies and has yielded acceptable alpha levels ranging from 0.70 to 0.93 (Berg et al., 2012).

Difficulties in Emotion Regulation Scale. The Difficulties in Emotion Regulation Scale (DERS) is a 36 item self-report questionnaire developed to comprehensively assess emotion dysregulation (Gratz & Roemer, 2004). It assesses emotion dysregulation on four dimension: (a) awareness and understanding of emotions, (b) acceptance of emotions, (c) ability to engage in goal-directed behavior and refrain from impulsive behavior while experiencing

negative emotions, and (d) access to emotion regulation strategies that are perceived as effective. The last dimension measures an individual's ability to utilize situationally appropriate strategies to regulate affect. Participants indicate how often items apply to them on a scale of 1 to 5 (1 – almost never, 2 – sometimes, 3 – about half the time, 4 – most of the time, and 5 – almost always). Higher scores on the DERS indicate greater difficulty in emotion regulation (Gratz & Roemer, 2004).

The DERS has demonstrated good psychometric properties (Gratz & Roemer, 2004). All 36 items on the DERS were subject to a factor analysis and had factor loadings of .40 or higher. Thus the items on the DERS are considered a valid reflection of emotion regulation. The DERS also demonstrated high internal consistency (Cronbach's $\alpha = .93$). Each subscale on the DERS had good internal consistency levels (Cronbach's $\alpha > .80$ for each). All scales on the DERS were significantly correlated (in the expected direction) with a standard measure of emotion regulation (the Negative Mood Regulation Scale) although it displayed a differential pattern of correlation (Gratz & Roemer, 2004). The DERS has also shown to account for significantly more variance than accounted for by the NMR in experiential avoidance, awareness, clarity, goals, and strategies. The predictive validity of the DERS was assessed by correlating DERS scores with two clinically relevant behavioral outcomes: self-harm and partner abuse. Significant correlations were demonstrated between the overall DERS score and partner

abuse. Self-harm was significantly correlated with the non-acceptance and impulse subscales for men and all four subscales for women (Gratz & Roemer, 2004). Finally, the DERS has demonstrated good test-retest reliability for the overall score (p1 = .88, $p < .01$) and for each subscale (p1 = .69 for non-acceptance; .69 for goals; .57 for impulse; .68 for awareness; .89 for strategies and .80 for clarity; all $p < .01$) (Gratz & Roemer, 2004).

Data Analysis

Regression analyses were utilized to assess the primary relationship between the independent variables (maternal invalidation, paternal invalidation, pre-treatment dietary restraint, and the DERS total score) and the dependent variables (total number of objective binge episodes, total number of vomiting, laxative, diuretic, and over-exercise episodes). The final model controlled for the demographic variables of age, marital status, ethnicity, and socio-economic status.

Chapter IV: Results

Descriptive Statistics

The mean scores on the ICES for this sample on maternal invalidation and paternal invalidation are comparable to previous research utilizing the scales on the ICES with individuals with a diagnosis of BN (Haslam et al., 2008). No research has utilized the ICES with BED.

Regression Analyses of invalidating childhood environment, dietary restraint, emotion dysregulation and binge eating episodes

Separate regression analyses were utilized to examine the influence between maternal invalidation, paternal invalidation, emotion dysregulation and dietary restraint on binge eating (EDE-Q total objective binge episodes) within this clinical sample. Each variable was entered as a predictor of the total number of objective binge episodes. A summary of the regression analyses is presented in Table 1. As can be seen, the final model consisted of age, socio-economic status, ethnicity, marital status, and the specific scale on the ICES, EDE-Q or DERS. Dummy variables were created for socio-economic status (0 = above poverty line and 1 = below the poverty line), ethnicity (0 = white, 1 = minority), and marital status (0 = married, separated, widowed, or divorced and 1 = single). In the final model, maternal invalidation (overall F = 4.26, Adjusted R = .01, $\beta = .23$; $p < .05$), emotion dysregulation (overall F = 8.73, Adjusted R = .05, $\beta = .29$; $p < .05$) and dietary restraint (overall F = 16.64, Adjusted R = .12, $\beta = .38$; $p < .01$) were

shown to be significant predictor variables of binge eating episodes in this sample. Paternal invalidation was not a significant predictor of binge eating episodes (overall F = 2.25, Adjusted R = -.01, β = .15, ρ = .14). Thus, dietary restraint predicted binge eating episodes more significantly than the other predictor variables in this sample while emotion dysregulation and maternal invalidation served as less significant predictors of binge eating.

Although dietary restraint significantly predicted more binge eating in this sample, if the variance of maternal and paternal invalidation is combined, the combined variance is comparable to the variance of dietary restraint (combined r^2=.10).

Regression analyses of invalidating childhood environment and dietary restraint and purging behaviors.

Further analyses were conducted to establish a relationship between purging behaviors (vomiting, laxative abuse, diuretic abuse, and over-exercise) and maternal invalidation, paternal invalidation and dietary restraint. Again, separate regression analyses were conducted utilizing maternal invalidation, paternal invalidation, and dietary restraint as predictor variables. Table 2 shows a summary of the regression analyses. Consistent with the original analysis, the final model consisted of age, socio-economic status, ethnicity, marital status, and the specific scale on the ICES, EDE-Q or DERS with the same dummy variables. The only significant relationship that was found was the relationship between

dietary restraint and over-exercise ($\beta = .24$; $p < .05$) in this sample ($F_{5,98} = 6.22$; $p = .01$). No other significant predictors were identified.

Chapter V: Discussion

This study simultaneously examined the relationship between variables associated with two theories of the development of binge eating. The results indicated that dietary restraint, maternal invalidation, and emotion dysregulation were significant predictors of binge eating in this clinical sample with dietary restraint demonstrating the greatest statistical significance. The results also indicated that dietary restraint was a significant predictor of over-exercise. These results do not support the author's hypothesis that childhood invalidation would be a greater predictor of binge eating behavior.

Current research has questioned the relationship of the family environment as a causal factor for the development of eating disorder psychopathology arguing that the family environment is secondary to other factors in the development of eating disorders (le Grange et al., 2010). This study addresses this issue by simultaneously testing a family environment theory and one that does not involve the family at all. This study shows support for this argument as it demonstrated that dietary restraint was the most significant predictor of binge eating in this sample. Le Grange et al. (2010) argued that the family environment is secondary to other factors in the development of eating disorders and this study supports that argument, showing that dietary restraint is the primary predictor of binge eating, demonstrating a substantially greater prediction than maternal invalidation (le Grange et al., 2010). While dietary restraint was the most significant predictor of

binge eating in this sample, maternal invalidation and emotion dysregulation were also shown to be significant predictors of binge eating. Thus, a relationship exists between perceived maternal invalidation in childhood and difficulty in affect regulation and binge eating behavior in adulthood although it may be secondary to dietary restraint.

The results of this study differ from the two previous studies examining invalidating childhood environments and the development of eating disorder psychopathology that showed that perceived invalidation was significantly associated with the development of BN in adulthood. It is interesting to note that previous research found that individuals with BN reported particular invalidation from their fathers while paternal invalidation was not found to be a significant predictor of binge eating behavior in this study (Haslam et al., 2008; Mountford et al., 2007). Further, previous research demonstrated that individuals with who reported greater maternal invalidation were less likely to binge while this study demonstrated that maternal invalidation significantly predicted binge eating behavior (Haslam et al., 2008; Mountford et al., 2007). The authors suggested that maternal invalidation could be associated with dietary restriction rather than binging but this study contradicts that suggestion.

The results of this study also differ from the previous studies regarding the association between invalidating childhood experiences and behaviors associated with BN. Previous research demonstrated a relationship between paternal

invalidation and vomiting (Haslam et al., 2008). This study found that maternal and paternal invalidation did not significantly predict behaviors associated with BN.

It is important to note that this sample included individuals with a diagnosis of BED while previous research excluded individuals with a diagnosis of ED-NOS (including BED). The different results suggest that the addition of individuals with BED may have altered the results significantly. It could be suggested that individuals with BED experience a different trajectory toward the development of binge eating behavior than individuals with BN. Based on these results, it could be suggested that binge eating in individuals with BED may be a result of more dietary restriction while binge eating for individuals with BN may serve as a form of affective regulation. However, research investigating the relationship between childhood invalidation and dietary restraint separately for individuals with BED and BN is merited to clarify the discrepancy of the findings of this study and previous research on the same topic.

The results of this study have significant clinical implications. Both theories investigated in this study directly inform treatment modalities: namely, the invalidating childhood environment theory informs DBT and the dietary restraint theory informs CBT. While further research is needed, it is suggested that an individual who presents with greater dietary restraint would be more appropriate for CBT while an individual who presents with greater childhood invalidation and

emotion dysregulation would be more appropriate for DBT. Although CBT has been shown to be efficacious for a significant number of individuals with BN and BED, a considerable number of clients do not respond to CBT (Chen, Matthews, Allen, Kuo, & Linehan, 2008). Therefore, CBT may not be treating the underlying constructs that created and maintained binge eating behavior in some individuals. The results of this study demonstrate that maternal invalidation and emotion dysregulation are also significant predictors of binge eating that are not addressed in the current CBT protocol for BED and BN. Some characteristics of individuals who do not respond to CBT have been identified. These characteristics include personality disorders (most notably Cluster B personality disorders), greater impulsivity, and more severe eating disorder symptoms (Chen et al., 2008). More research is needed to identify different treatment modalities that will work for these individuals.

It is important to continue to identify the underlying constructs associated with the development of binge eating to help create a comprehensive theoretical framework to better inform treatment modalities and prevention programs. Both the invalidating childhood environment theory and dietary restraint theory add to the development of such a framework, which will significantly help clinicians formulate an understanding of an individual's unique eating disorder. Further, research is needed to identify and clarify variables that mediate the relationship between identified risk factors and the actual development of binge eating in

adulthood.

Another significant clinical implication of this study is the inclusion of individuals with BED, which will likely be included in the DSM-V. Individuals with BED present with unique etiologies separate from BN and AN. Repeating this study only utilizing individuals with BED may clarify if BED is more related to a behavioral theory, as the results of this study suggest. Individuals with BED currently make up a substantial percentage of individuals in the eating disorder field (Fairburn & Bohn, 2005). Treatments utilizing CBT or CBT guided self-help have been shown to be successful with BED and the results of this study are consistent with those results, suggesting that individuals with BED would be successful with a behaviorally based treatment modality like CBT.

A major limitation to this study is that the sample was not separated into diagnoses. Thus, it is difficult to interpret whether predictors of binge eating differ by diagnosis. As the literature on BED expands, it will be important to identify the intricacies of the diagnosis and how it differs from other eating disorders. As more researchers include individuals with BED in their studies, clinicians will be more informed for treatment planning, adjusting treatment, and challenges to treatment.

The EDE-Q, ICES, and DERS are retrospective, self-report measures and therefore pose reliability issues. However, Mountford et al. (2007) argued that the ICES was advantageous because it assesses for an individual's perception of his

or her childhood. Assessing for perception of childhood reduces issues of reliability and can explain how two individuals can grow up in the same environment and one will develop binge eating in adulthood while the other does not.

The results of this study support that further research is needed to solidify a theoretical framework for the development of binge eating. Additional research is needed to clarify the relationship between an invalidating childhood experience and the development of binge eating. Because of the inconsistent findings with this study and previous research, possible mediators must be identified and separate analyses must be conducted for individuals with different diagnoses. While the regression analysis can identify predictors of binge eating, it cannot predict causality. Therefore, experimental and longitudinal studies are needed to clarify and solidify the relationship between risk factors and identified predictors of binge eating. A pathway analysis could also help explain how an individual who experiences an invalidating childhood experience develops binge eating behavior in adulthood. Finally, more research examining personality factors and invalidation could provide important information about how invalidation could serve as a predictor of binge eating in adulthood.

References

Berg, K. C., Peterson, C. B., Frazier, P., & Crow, S. J. (2012). Psychometric evaluation of the Eating Disorder Examination and the Eating Disorder Examination-Questionnaire: A systematic review of the literature. *International Journal of Eating Disorders, 45,* pp. 428–438. doi:10.1002/eat.20931

Chen, E. Y., Matthews, L., Allen, C., Kuo, J. R., & Linehan, M. M. (2008). Dialectical behavior therapy for clients with binge eating disorder or bulimia nervosa and borderline personality disorder. *International Journal of Eating Disorders, 41,* pp. 505–512. doi:10.1002/eat.20522

Engelberg, M. J., Gauvin, L., & Steiger, H. (2005). A naturalistic evaluation of the relation between dietary restraint, the urge to binge, and actual binge eating: A clarification. *International Journal of Eating Disorders, 38,* pp. 355–360. doi:10.1002/eat.20186

Fairburn, C.G. (1997). Eating disorders. In D. M. Clarke, & C. G. Fairburn (Eds.), *Science and Practice of Cognitive Behavioural Therapy* (pp. 209–241). Oxford, UK: Oxford University Press.

Fairburn, C. G., & Bohn, K. (2005). Eating disorder NOS (EDNOS): An example of the troublesome "not otherwise specified" (NOS) category in DSM-IV. *Behavioral Research Therapy, 43,* pp. 691–701.

Fairburn C. G., & Cooper, Z. (1993). The Eating Disorder Examination (twelfth

edition). In: C. G. Fairburn & G. T. Wilson (Eds.). *Binge Eating: Nature, Assessment and Treatment*. (pp. 317-360). New York, NY: Guilford Press.

Fairburn, C. G., Welch, S. L., Doll, H. A., Davies, B. A., & O'Connor, M. E. (1997). Risk factors for bulimia nervosa: A community-based case-control study. *Archives of General Psychiatry, 54,* pp. 509–517. doi:10.1001/archpsyc.1997.01830180015003

Gendall, K. A., & Joyce, P. R. (2000). Meal induced changes in tryptophan: LNAA ratio effects on craving and binge eating. *Eating Behaviours, 1,* pp. 53–62. doi:10.1016/s1471-0153(00)00006-4

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment, 26,* pp. 41–54. doi:10.1023/b:joba.0000007455.08539.94

Haslam, M., Mountford, V., Meyer, C., & Waller, G. (2008). Invalidating childhood environments in anorexia and bulimia nervosa. *Eating Behaviors, 9,* pp. 313–318. doi:10.1016/j.eatbeh.2007.10.005

Huon, G. F. (1996). Health promotion and the prevention of dieting induced disorders. *Eating Disorders: The Journal of Treatment and Prevention, 4,* pp. 257–268. doi:10.1080/10640269608250073

Johnson, J. G., Cohen, P., Kasen, S., & Brook, J. S. (2002). Childhood adversities

associated with risk for eating disorders or weight problems during adolescence or early adulthood. *American Journal of Psychiatry, 159*, pp. 394–400. doi:10.1176/appi.ajp.159.3.394

Kaye, W., Gendall, K., & Strober, M. (1998). Serotonin neuronal function and selective serotonin reuptake inhibitor treatment in anorexia and bulimia nervosa. *Biological Psychiatry, 44,* pp. 825–838. doi:10.1016/s0006-3223(98)00195-4

Killen, J. D., Taylor, C. B., Hayward, C., Haydel, K. F., Wilson, D. M., Hammer, L., … Strachowski, D. (1996). Weight concerns influence the development of eating disorders: A 4-year prospective study. *Journal of Consulting and Clinical Psychology, 64,* pp. 936–940. doi:10.1037/0022-006x.64.5.936

Killen, J. D., Taylor, C. B., Hayward, C., Wilson, D. M., Haydel, K. F., Hammer, L. D., … Kraemer, H. (1994). Pursuit of thinness and onset of eating disorder symptoms in a community sample of adolescent girls: A three year prospective analysis. *International Journal of Eating Disorders, 16,* pp. 227–238. doi:10.1002/1098-108X(199411)16:3<227::AID-EAT2260160303>3.0.CO;2-L

Krause, E. D., Mendelsen, T., & Lynch, T. R. (2003). Childhood emotional invalidation and adult psychological distress: The mediating role of emotional inhibition. *Child Abuse & Neglect, 27,* pp. 199–213.

doi:10.1016/s0145-2134(02)00536-7

le Grange, D. Lock, J., Loeb, K., & Nicholls, D. (2010). Academy for eating disorders position paper: The role of the family in eating disorders. *International Journal of Eating Disorders, 43,* pp. 1–5. doi:10.1002/eat.20751

Leff, J., & Vaughn, C. (1985). *Expressed emotion in the family.* New York, NY: Guilford Press.

Liebowitz, S. F. (1986). Brain serotonin and eating behaviour. *Appetite, 7,* pp. 39–56. doi:10.1016/s0195-6663(86)80049-6

Linehan, M. M. (1993). *Cognitive–behavioral treatment of borderline personality disorders*. New York, NY: Guilford Press.

Linehan M. M., Comtois K. A., Murray A. M., Brown M. Z., Gallop R. J., Heard H. L.,… Lindenboim N. (2006). Two-year randomized controlled trial and follow-up of dialectical behavior therapy vs. therapy by experts for suicidal behaviors and borderline personality disorder. *Archives of General Psychiatry, 63,* pp. 757–766. doi:10.1001/archpsyc.63.7.757

Leung, F. Schwartzman, A., & Steiger, H. (1996). Testing a dual-process family model in understanding the development of eating pathology: A structural equation modeling analysis. *International Journal of Eating Disorders, 20,* pp. 367–375. doi: 10.1002/(SICI)1098-108X(199612)20:4<367::AID-EAT4>3.0.CO;2-L

Lowe, M. R., Gleaves, D. H., & Murphy-Eberenz, K. P. (1998). On the relation of dieting and bingeing in bulimia nervosa. *Journal of Abnormal Psychology, 107,* pp. 263–271. doi: 10.1037/0021-843x.107.2.263

Marlatt, G. A., & Gordon, J. R. (1985). *Relapse prevention: Maintenance strategies in the treatment of addictive behaviors.* New York, NY: Guilford Press.

McManus, F., & Waller, G. (1995). A functional analysis of binge eating. *Clinical Psychology Review, 15,* pp. 845–865. doi:10.1016/0272-7358(95)00042-9

Meyer, C., Waller, G., & Waters, A. (1998). Emotional states and bulimic psychopathology. In H. W. Hoek, J. L. Treasure, & M. A. Katzman (Eds.), *Neurobiology in the treatment of eating disorders* (pp 271–289). Chichester, UK: Wiley.

Mountford, V. Corstophine, E. Tomlinson, S., & Waller, G. (2007). Development of a measure to assess invalidating childhood environments in the eating disorders. *Eating Behaviors, 8,* pp. 48–58. doi:10.1016/j.eatbeh.2006.01.003

Patton, G. C., Johnson-Sabine, E., Wood, K., Mann, A. H., & Wakeling, A. (1990). Abnormal eating attitudes in London schoolgirls. A prospective epidemiological study, outcome at twelve month follow-up. *Psychological Medicine, 20,* pp. 383–394. doi:10.1017/s0033291700017700

Peterson, C. B., Crosby, R. D., Wonderlich, S. A., Joiner, T., Crow, S. J.,

Mitchell, J. E.,… le Grange, D. (2007). Psychometric properties of the Eating Disorder Examination-Questionnaire: Factor structure and internal consistency. *International Journal of Eating Disorders, 40,* pp. 386–389. doi:10.1002/eat.20373

Polivy, J., & Herman, C. (1985). Dieting and binge eating: A causal analysis. *American Psychologist, 40,* pp. 193–204. doi:10.1037/0003-066x.40.2.193

Polivy, J., & Herman, C. P. (1993). Etiology of binge eating: Psychological mechanisms. In C. G. Fairburn, & G. T. Wilson (Eds.), *Binge eating: Nature, assessment, and treatment* (pp. 173–205). New York, NY: Guilford Press.

Root, M. P. P., & Fallon, P. (1989). Treating the victimized bulimic. *Journal of Interpersonal Violence, 1,* pp. 90–100. doi:10.1177/088626089004001006

Schmidt, U., Humfress, H., & Treasure, J. (1998). The role of general family environment and sexual and physical abuse in the origins of eating disorders. *European Eating Disorders Review, 5,* pp. 184–207. doi: 10.1002/(SICI)1099-0968(199709)5:3<184::AID-ERV203>3.0.CO;2-B

Spoor, S. T. P., Stice, E., Bekker, M. H. J., Van Strien, T., Croon, M. A., & Van Heck, G. L. (2006). Relations between dietary restraint, depressive symptoms, and binge eating: A longitudinal study. *International Journal of Eating Disorders, 39,* pp. 700–707. doi:10.1002/eat.20283

Stice, E. (2002). Risk and maintenance factors for eating pathology: A meta-analytic review. *Psychological Bulletin, 128,* pp. 825–848. doi:10.1037/0033-2909.128.5.825

Stice, E., Killen, J. D., Hayward, C., & Taylor, C. B. (1998). Support for the continuity hypothesis of bulimic pathology. *Journal of Consulting and Clinical Psychology, 66,* pp. 784–790. doi:10.1037/0022-006x.66.5.784

Stice, E., Presnell, K., & Spangler, D. (2002). Risk factors for binge eating in adolescent girls: A 2-year prospective investigation. *Health Psychology, 21,* pp. 131–138. doi:10.1037/0278-6133.21.2.131

Striegel-Moore, R. H., & Cachelin, F. M. (2001). Etiology of eating disorders in women. *The Counseling Psychologist, 29,* pp. 635–661. doi:10.1177/0011000001295002

Steiger, H., Gauvin, L., Engelberg, M. J., Ng Ying King, N. M. K., Israel, M., Wonderlich, S. A., & Richardson, J. (2005). Mood and restraint-based antecedents to binge episodes in bulimia nervosa: Possible influences of the serotonin system. *Psychological Medicine, 35,* pp. 1553–1562. doi:10.1017/s0033291705005817

van der Kolk, B. A., & Fisler, R. E. (1994). Childhood abuse and neglect and loss of self regulation. *Bulletin of the Menninger Clinic, 58,* pp. 145–168. Retrieved from http://www.menningerclinic.com/research/bulletin

Waller, G., Corstorphine, E., & Mountford, V. (2007). The role of emotional abuse in the eating disorders: Implications for treatment. *Eating Disorders, 15,* pp. 317–331. doi:10.1080/10640260701454337

Wilson, G. T., Fairburn, C. C., Agras, S. W., Walsh, T. B., & Kraemer, H. (2002). Cognitive-behavioral therapy for bulimia nervosa: Time course and mechanisms of change. *Journal of Consulting and Clinical Psychology, 70,* pp. 267–274. doi:10.1037/0022-006x.70.2.267

Tables

Table 1

Summary of Regression Analyses for Variables Predicting Objective Binge Eating Episodes.

Variable	B	SE B	β
ICES			
Maternal Invalidation	6.01	2.91	.23*
Paternal Invalidation	3.74	2.49	.15
EDE-Q			
Pre-Tx Dietary Restraint	4.64	1.14	.38**
DERS	1.41	.48	.29*

*$p < .05$

** $p < .001$

Table 2

Summary of Regression Analyses for Variables Predicting Purging Behaviors.

Variable	B	SE B	β
Vomiting			
Maternal Invalidation	2.58	4.12	0.71
Paternal Invalidation	3.52	3.55	.10
EDE-Q Pre-Tx Dietary Restraint	3.73	1.65	.22
Laxative Use			
Maternal Invalidation	1.03	.81	.14
Paternal Invalidation	.95	.70	.13
EDE-Q Pre-Tx Dietary Restraint	.44	.33	.13
Diuretics Use			
Maternal Invalidation	.77	.61	.14
Paternal Invalidation	.60	.53	.11
EDE-Q Pre-Tx Dietary Restraint	-.08	.25	-.03
Over-Exercise			
Maternal Invalidation	1.22	.62	.22
Paternal Invalidation	.57	.54	.10
EDE-Q Pre-Tx Dietary Restraint	.63	.25	.24*

$^*p < .05$

Table 3

Results of Regression Analyses in Final Model to Test Whether Scales on the ICES, EDE-Q, and DERS Predict Binge Eating Episodes When Controlling for Demographic Variables

Variable	R	R ^2	Adj. R	Std. Error	R^2 Change	F Change	Sig. F Change
Maternal Invalidation	.22	.06	.01	23.66	.04	4.26	.04
Paternal Invalidation	.20	.04	-.01	23.59	.02	2.25	.14
Restraint	.40	.16	.12	22.36	.14	16.64	.00
DERS	.31	.10	.05	23.17	.08	8.73	.00

Table 4

Results of Regression Analyses to Test Whether Scales on the ICES and EDE-Q Predict Purging Episodes When Controlling for Demographic Variables.

Variable	B	*T*	*p*
Vomiting			
Maternal Invalidation	.07	.63	.53
Paternal Invalidation	.10	.99	.32
EDE-Q Restraint	.22	2.27	.03
Laxative Use			
Maternal Invalidation	.14	1.26	.21
Paternal Invalidation	.13	1.37	.18
EDE-Q Restraint	.13	1.34	.18
Diuretics Use			
Maternal Invalidation	.14	1.26	.21
Paternal Invalidation	.11	1.13	.26
EDE-Q Restraint	-.03	-.32	.75
Over-Exercise			
Maternal Invalidation	.22	1.97	.05
Paternal Invalidation	.10	1.04	.30
EDE-Q Restraint	.24	2.49	.01

Table 5

Results of Regression Analyses to Test Whether Scales on the ICES and EDE-Q Predict Purging Episodes When Controlling for Demographic Variables.

Variable	R	R^2	Adj. R	Std. Error	R^2 Change	F Change	Sig F Change
Vomiting							
Maternal Invalidation	.18	.03	-.02	33.03	.00	.39	.53
Paternal Invalidation	.20	.04	-.01	33.08	.01	.98	.32
EDE-Q Restraint	.28	.08	.03	32.25	.05	5.14	.03
Laxatives							
Maternal Invalidation	.33	.11	.06	6.51	.02	1.60	.21
Paternal Invalidation	.34	.11	.07	6.51	.02	1.87	.18
EDE-Q Restraint	.33	.11	.06	6.51	.02	1.80	.18
Diuretics							
Maternal Invalidation	.37	.14	.09	4.90	.01	1.60	.21
Paternal Invalidation	.37	.14	.09	4.92	.01	1.29	.26
EDE-Q Restraint	.35	.12	.08	4.94	.00	.10	.75
Over-Exercise							
Maternal Invalidation	.29	.08	.04	5.01	.04	3.86	.05
Paternal Invalidation	.25	.06	.02	5.07	.01	1.08	.30
EDE-Q Restraint	.32	.10	.06	4.96	.06	6.22	.01

Appendix A

Informed Consent

The UNIVERSITY OF CHICAGO

The Division of the Biological Sciences The University of Chicago Hospitals

SCREENING CONSENT BY SUBJECT FOR PARTICIPATION IN A RESEARCH PROTOCOL

Protocol Number: #15150A Name of Subject:
Medical History Number:_________

STUDY TITLE: Treatment development for difficult - to- treat eating and weight disorders

Doctors Directing Research: Dr Eunice Chen

Address: 5841 S Maryland Ave, MC 3077, Department of Psychiatry, University of
Chicago.
Telephone Number: 773 834 9101.

You are being asked to participate in a research study. A member of the research team will explain what is involved in this study and how it will affect you. This consent form describes the study procedures, the risks and benefits of participation, as well as how your confidentiality will be maintained. Please take your time to ask questions and feel comfortable making a decision whether to participate or not. This process is called informed consent. If you decide to participate in this study, you will be asked to sign this form.

WHY IS THIS STUDY BEING DONE?

The purpose of this study is to assess how well psychotherapy and drug therapy work with adults with difficult - to- treat eating disorders and weight disorders. This includes adults with anorexia nervosa and adults with eating or weight disorders who are also suicidal or have other problems or who do not respond quickly to treatment. This research is being done because currently, there are no treatments developed for people with these problems.

This study is also being done to assess how faithful trainee assessors and trainee therapists are to the delivery of assessment and treatment techniques to participants. These trainees will be overseen by licensed clinicians.

HOW MANY PEOPLE WILL TAKE PART IN THE STUDY?

About 404 people will participate as participants and about 50 people will participate as trainee assessors and trainee therapists in this study at the University of Chicago.

WHAT IS INVOLVED IN THE STUDY?

All people who are interested in receiving treatment at our clinic undergo all of the described assessments as part of their evaluation, whether or not they participate in research. We are collecting the information obtained from these assessments to determine if you qualify for a research study. Our study is to examine how helpful various treatments are in the treatment of difficult - to- treat eating and weight disorders. As a part of this study, people who have certain problems may be referred by chance to drug therapy or to psychotherapy. Other people with certain problems may be enrolled in treatment for 4 individual sessions and if the treatment does not work quickly, will be allocated by chance to one of two psychotherapies.

For all participants, the screening evaluation itself will last from four to six hours and may be split into two sessions. You may be enrolled as a pilot training participant for these studies where you are not assigned by chance to treatment. As we may be in the process of starting a new research study and want to establish that our procedures and protocols are correct, we sometimes will not be assigning patients by chance to treatment. Given this, you may be enrolled as a pilot training participant for these studies where you are not assigned by chance to treatment. During the screening evaluation, the assessor will ask about current emotional problems, including questions about drug and alcohol use, eating problems and suicidal behavior and past treatment. You may also be asked or have been asked to complete a number of questionnaires online asking you about your mood, and feelings about treatment.

You are free not to answer any question or item that you do not wish to answer in any test, inventory, questionnaire, or interview. No penalty or loss of benefits will occur as a result of not participating in the initial screening interview or online questionnaires.

You are free not to sign this consent to allow us to use the questionnaire and interview for research purposes. You will be told in a couple of weeks whether or not this research study is a good fit for you, and the types and timing of further assessment and treatment will be discussed with you. If this research study is a good fit for you, we will go through all the requirements of participation and if you are interested, we ask you to sign another consent form for participating further assessment and treatment. This consent form will detail the further assessment and type of treatment that will be offered and how you will be assigned to treatment.

As part of the research study, we will audio/video and digitally record all assessment sessions including the screening interview in order to check that assessment procedures are being adequately followed by trainee assessors. As audio/video or digital recording of assessment is part of this research study, if you decide that you do not wish to do this, we will make some referral suggestions to other assessment and treatment sites. It is not possible for you to participate in the research study without participating in audio/video or digital recordings of assessment or treatment. After reviewing this screening consent with you we will ask you to review the audio/video/digital consent form. Members of the research team may review recordings or copies of recordings for training and research purposes.

APPROVED

Consent Form Approved by the IRB January 05, 2011 - September 20, 2011

We may ask you sign a release form allowing us to contact past/present / future treatment providers to assist us in making a decision as to whether this program is a good fit for you.

We may ask you sign a release form allowing us to contact past/present / future treatment providers to assist us in making a decision as to whether this program is a good fit for you.

SCREENING ASSESSMENTS

What follows is a list of the assessments that form our screening which will last from four to six hours.

1. Interviews lasting 30 minutes to 60 minutes asking questions about current eating.
2. Interviews lasting approximately two- four hours asking questions about your current psychological functioning
3. Online questionnaires concerning mood, eating, suicidality, and thoughts about treatment. Questionnaires require up to an hour to complete.

Personal information that will be collected will include your name, address, social security number and medical record number. Within a couple of weeks, you will be told whether or not this study is appropriate for you, and the types and timing of further assessment and treatment will be discussed with you. No penalty or loss of benefits will occur because of not participating in the study.

HOW LONG WILL I BE IN THE STUDY?

The actual screening portion of this study which you are currently being asked to consider with this consent form will last only four to six hours. If this screening indicates that this study is a good match for you and you agree to participate in the study, we think you will be in the study up to 18- 22 months that involves 6- 8 months of study visits and up to 14 months of follow - up. The research data gathered however will be maintained indefinitely.

Dr. Chen may decide to take you off of the screening study without your consent if:

- You are not a good match for the study;
- Your psychological condition changes;
- The research study is no longer available;
- New information becomes available that indicates that participation in this
- study is not in your best interest; or
- If the study is stopped.

WHAT ARE THE RISKS OF THE STUDY?

The outcome of the screening interview may also be distressing for some people. Unfortunately, we cannot predict whether or not the screening interview will find the research study a good fit for you until it has been completed. People may feel disappointed if the research study is not found to be a good fit for them. However, we do not want to offer you the study if it is not be suitable or does not fit your current needs. In this situation we will do our best to minimize your distress and also to suggest referrals that may be a better fit.

APPROVED

Consent Form Approved by the IRB January 05, 2011 - September 20, 2011

The screening interviews and questionnaires may be stressful for some people. Some individuals may experience increased emotional discomfort as they discuss past or present problems during the assessments. Other persons find this a useful way to express some of their feelings and gain helpful information about themselves. During each in - person assessment, a trained professional will be available for consultation should your discomfort become extreme.

Other risks may include the fatigue that results from the lengthy assessment process. We try to minimize this by stopping whenever you want to for a break. These audio and video tapes will be kept locked in the research clinic. They may be kept indefinitely and may be reviewed by the research members of the Adult Eating and Weight Disorders Clinic for training and research purposes.

If our research team becomes aware of child or elder abuse or neglect, intent to hurt yourself or others, or if an HIV- infected person is unknowingly engaging in risky behavior with an unknowing other specific person, we may report these circumstances to the appropriate authorities.

ARE THERE ANY BENEFITS TO TAKING PART IN THE STUDY?

If you agree to take part in this screening study, there may not be direct medical benefit to you. We hope the information learned from this screening study will benefit other individuals with difficult - to- treat eating and weight disorders in the future .

WHAT OTHER OPTIONS ARE THERE?

Instead of being in this study, you have these options:

Referral to the General Outpatient Clinic in Psychiatry

You may choose not to participate.

The decision whether or not you wish to participate in this study will not affect your care at the University of Chicago Hospitals.

WHAT ARE THE COSTS?

This is a study of the screening assessment typically offered at our clinic. As the procedures performed during this screening study are the same procedures conducted as standard assessments and treatments at our clinic, you will be responsible for the costs of the procedures.

APPROVED

Consent Form Approved by the IRB January 05, 2011 - September 20, 2011

If you suffer an unanticipated injury as a direct result of this research and require emergency medical treatment, the University of Chicago Medical Center will provide such treatment at the University of Chicago Medical Center at no cost to you. You must notify Dr. Eunice Chen as promptly as possible after your injury in order to receive this care. An injury is "unanticipated" if it is not one of the known effects of a study drug, medical device or procedure, and is not the result of your disease or condition. The costs of any non - emergency care for such an injury will be billed to you or your insurance in the ordinary manner. If you think that you have suffered a research related injury, you must let Dr. Eunice Chen know right away.

WILL I BE PAID FOR MY PARTICIPATION?

You will not be paid for your participation.

WHAT ABOUT CONFIDENTIALITY?

You have been sent an email link before this screening assessment or will be being given an email link at this assessment to our routine clinic questionnaires for you to fill in online. This data is kept in an encrypted password protected database which can only be accessed by the study doctor, her co- investigators and any immediate study personnel. All research data including this questionnaire data will be coded by subject number only and not by identifiers (e.g. name). All materials including audio and videotapes are kept in our locked laboratory and will be kept indefinitely. Databases are accessible only through password protected interfaces. The bridging database for participants (i.e. between subject number code and identifiers) will be kept by the study doctor in a separately locked part of the research clinic and also in a password protected part of the Department of Psychiatry server, accessible only to the study doctor and her co - investigators. Access to the data and databases are limited to individuals who require these for their work. For instance, clinical staff will only have access to the clinical database whilst research staff will have access to the research database. Raw data will not be available to anyone other than the study doctor, co-investigators and immediate study personnel.

If information is to be exchanged with other mental health professionals outside the University of Chicago for case management, training or research purposes, you will be asked to sign a release of information form. If you refuse, information

will not be released. However, if we have a strong reason to believe that you are in danger of suicide or harming others, we will take steps to save your life or to intervene to protect others. We will keep identifying information in a secured but accessible location. In the event of an emergency, this information will be accessible to clinical and research staff.

The data collected in this study will be used for the purpose described in the form. By signing this form, you are allowing the research team access to your medical records, which include Protected Health Information. Protected Health Information (PHI) consists of any health information that is collected about you, which could include your medical history and new information collected as a result of this study. The research team includes the individuals listed on this consent form and other personnel involved in this study at the University of Chicago.

APPROVED

Consent Form Approved by the IRB January 05, 2011 - September 20, 2011

As part of the study, Dr. Chen and her research team will report the aggregated results of study - related procedures and tests explained above that have been completed by all participants to her sponsors - the American Foundation of Suicide Prevention, NARSAD (The Mental Health Research Foundation) and the National Institute of Health. These would include results of the research study on a group of participants, therapists or assessors from questionnaires and interviews. Individual identifying data (e.g. videotapes) will not be sent. This information is being sent because a six- monthly report is required by these funding bodies. The study sponsor or their representatives, including monitoring agencies, may also review your medical record. Please note that these individuals may share your health information with someone else. If they do, the same laws that the University of Chicago must obey may not protect your health information.

To help us protect your privacy, we have obtained a Certificate of Confidentiality from the National Institutes of Health. With this certificate, the researchers cannot be forced to disclose information that may identify you, even by a court subpoena, in any federal, state, or local civil, criminal, administrative, legislative, or other proceedings. The researchers will use the certificate to resist any demands for information that would identify you, except as explained below.

The certificate cannot be used to resist a demand for information from personnel of the United States Government that is used for auditing or evaluation of federally funded projects or for information that must be disclosed in order to meet the requirements of the federal Food and Drug Administration (FDA).

You should understand that a Certificate of Confidentiality does not prevent you or a member of your family from voluntarily releasing information about yourself or your involvement in this research. If an insurer, employer, or other person obtains your written consent to receive research information, then the researchers may not use the certificate to withhold that information.

The Certificate of Confidentiality does not prevent the researchers from disclosing voluntarily, without your consent, information that would identify you as a participant in the research project under the following circumstances: if

our research team becomes aware of child or elder abuse, intent to hurt yourself or others, or if an HIV-infected person is unknowingly engaging in risky behavior with an unknowing other specific person. In these situations, reports may be made to the appropriate authorities.

Your records may be reviewed by federal agencies whose responsibility is to protect human subjects in research including the Office of Human Research Protections (OHRP). In addition, representatives of the University of Chicago, including the Institutional Review Board, a committee that oversees the research at the University of Chicago, may also view the records of the research. If your research record is reviewed by any of these groups, they may also need to review your entire medical record.

APPROVED

Consent Form Approved by the IRB January 05, 2011 - September 20, 2011

The results from tests and/or procedures performed as part of this study may become part of your medical record.

During your participation in this study, you will have access to your medical record. Dr. Chen is not required to release to you research information that is not part of your medical record.

This consent form will be kept by the research team for at least six years. The study results will be kept in your research record and be used by the research team indefinitely. At the time of study completion, either the research information not already in your medical record will be destroyed or information identifying you will be removed from study results. Any research information in your medical record will be kept indefinitely.

Data from this study may be used in medical publications or presentations. Your name and other identifying information will be removed before this data is used. If we wish to use identifying information in publications, we will ask for your approval at that time.

WHAT ARE MY RIGHTS AS A PARTICIPANT?

Taking part in this study is voluntary. If you choose not to participate in this study, your care at the University of Chicago/University of Chicago Hospitals will not be affected.

You may choose not to participate at any time during the study. Leaving the study will not affect your care at the University of Chicago/University of Chicago Hospitals.

If you choose to no longer be in the study and you do not want any of your future health information to be used, you must inform Dr. Chen in writing at the address on the first page. Dr. Chen may still use your information that was collected prior to your written notice.

We will tell you about significant new information that may affect your willingness to stay in this study.

You will be given a signed copy of this document. This consent form document does not have an expiration date.

WHO DO I CALL IF I HAVE QUESTIONS OR PROBLEMS?

You have talked to the assessor about this study and you had the opportunity to ask questions concerning any and all aspects of the research. If you have further questions about the study, you may call Dr Eunice Chen (773- 834-9101) or page her by calling 773- 702- 1000 and asking for Dr Eunice Chen.

Version #15 / 8- 6- 10 Page: 7

Consent Form Approved by the IRB January 05, 2011 - September 20, 2011

If you have any questions concerning your rights in this research study you may contact the Institutional Review Board, which is concerned with the protection of subjects in research projects. You may reach the Committee office between 8:30 am and 5:00 pm, Monday through Friday, by calling (773) 702 - 6505 or by writing: Institutional Review Board, University of Chicago, 5751 S. Woodlawn Avenue, McGiffert Hall 2nd Floor, Chicago, Illinois 60637.

CONSENT
SUBJECT
The research project and the procedures associated with it have been explained to me. The experimental procedures have been identified and no guarantee has been given about the possible results. I will receive a signed copy of this consent form for my records.

I agree to participate in this study. My participation is voluntary and I do not have to sign this form if I do not want to be a part of this research study.

Signature of Subject: ______________________________
Date: Time: AM/PM (Circle)

PERSON OBTAINING CONSENT

I have explained to (person's name) ______________________ the nature and purpose of the study and the risks involved. I have answered and will answer all questions to the best of my ability. I will give a signed copy of the consent form to the subject and family.

Signature of Person Obtaining Consent: ______________________
Date: Time: AM/PM (Circle)

INVESTIGATOR/PHYSICIAN:
Signature of Investigator/Physician ______________________
Dr. Eunice Chen
Date: Time: AM/PM (Circle)

APPROVED

Consent Form Approved by the IRB January 05, 2011 - September 20, 2011

Appendix B

IRB Approval Letter

July 8, 2011

Christine Reh
Adler School of Professional Psychology
17 N Dearborn
Chicago, IL 60602

Dear Ms. Reh,

The Institutional Review Board evaluated your submission, proposal **#11-040**, *An Exploration of Behavioral and Affective Dysregulation in a Sample with Binge Eating Disorders*. Your application has received Full Approval. This means that you may proceed with your plan of study it is outlined in your proposal.

Please note that if you wish to make changes to your procedures or materials, you must provide written notification to the IRB in advance of the changes, co-signed by your Dissertation Chair, Dr. David Castro-Blanco. Such changes must be approved by the IRB prior to implementation. Good luck as you proceed with your research, and please feel free to contact myself or other IRB committee members should you have any questions.

Sincerely,

Catherine A. McNeilly, PsyD

Catherine McNeilly, Psy.D., CADC
Core Faculty, Psy.D. Program in Clinical Psychology
Chair, Institutional Review Board
Adler School of Professional Psychology

Appendix C

Letter Approving Access to Database

DEPARTMENT OF PSYCHIATRY &
BEHAVIORAL NEUROSCIENCE

MC3077
5841 South Maryland Avenue
Chicago, Illinois 60637-1470

June 1, 2011

To the Adler School of Professional Psychology Institutional Review Board,

My name is Eunice Chen, Ph.D. and I am the owner of the data at the Adult Eating and Weight Disorders Program at the University of Chicago. This letter approves the use of the following data from the Adult Eating and Weight Disorders Program at the University of Chicago by Christine Reh for the purposes of completing her doctoral dissertation:

- Demographics questionnaire
- Eating Disorders Examination Questionnaire (EDEQ)
- Difficulty in Emotion Regulation Scales (DERS)
- Invalidating Childhood Environment Scale (ICES)

Sincerely,

Eunice Chen, Ph.D.

Assistant Professor
Director, Adult Eating and Weight Disorders Clinic
The University of Chicago

5841 S. Maryland Ave. Chicago, IL 60637

T: 773) 834-9101 F: (773) 702-9929 W: http://adulteatingdisorders.uchicago.edu

AT THE FOREFRONT OF MEDICINE