THE DEVELOPMENT AND TESTING OF THE CODEPENDENCY-OVEREATING MODEL IN UNDERGRADUATE SOCIAL SCIENCE STUDENTS IN A MISSISSIPPI COLLEGE

By

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I certify that I have read this dissertation and that in my opinion it is fully adequate as a dissertation for the degree of Doctor of Philosophy,

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DEDICATION

Like the raindrops' journey to Niagara Falls…we never know where life may lead us… dedicated to that journey… and to the friends and family who have enriched my soul along the way.

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ABBREVIATIONS/SYMBOLS

A	Cronbach's Alpha
AA	African-American
ACT®	Trademark-Standardized College Readiness Score
ACOA	Adult child of alcoholic
ADN	Associate Degree Nursing
BED	Binge Eating Disorder
BMI	Body Mass Index
b/t	Between
COA	Children of Alcoholics
CODAT	Codependency Assessment Tool
COM	Codependency-Overeating Model
DEF	Defensiveness
F	Female
F	F-test statistic
FLD	Flexible Line of Defense
Grp	Group
HIV	Human Immunodeficiency Virus
INC	Inconsistent Responding
IRB	Institutional Review Board
m	Mean
M	Mean
M	Male
MWF	Monday-Wednesday-Friday
N/n	Number of Sampling Units in a Population
NLD	Normal Line of Defense
NSM	Neuman System Model
NWCC	Northwest Mississippi Community College
OQ	Overeating Questionnaire

P	Probability
PSY	Psychology
r	Correlation Coefficient
r^2	Coefficient of Determination
R^2	Squared Multiple Correlation
SAFO	Substance Abuse in the Family of Origin
SB	Spearman-Brown Estimate of Internal Consistency
SCL-90-R	Symptom Checklist-90-R
SD	Standard Deviation
SES	Socioeconomic Status
SO	Significant Other
SOC	Sociology
SPSS	Statistical Package for the Social Sciences
T-RT	Test-Retest
UMMC	University of Mississippi Medical Center
W	Coefficient of Concordance
WPS	Western Psychological Services, Inc.
Wt	Weight

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Overeating is a common eating disorder and often leads to obesity and to significant physical, emotional and social problems often warranting nursing care. The psychological and behavioral factors surrounding overeating are noted frequently in the literature, but are not emphasized in most prevention and treatment programs for overeating. Codependency has expanded beyond the chemical dependency field and describes the dysfunctional pattern of behavior of an individual in a relationship with another person or from survival in a dysfunctional family of origin. This pattern of behavior includes the neglect of personal needs, focus and dependency on others, boundary/control issues, low self-worth along with physical and psychological consequences. Anxiety, depression, anger and compulsivity are psychological problems often linked with overeating and codependency. Because of the complexity, nursing care of persons with overeating and codependency problems is best viewed from a systems perspective such as the Neuman Systems Model which provided the nursing frame of reference for this study. The purpose of this study was to test the Codependency-Overeating Model (COM) by examining the relationships between the variable of interest, overeating and the proposed predictor variables of codependency, anxiety, depression, anger and compulsivity. Overeating was measured with the Overeating Questionnaire (OQ). Codependency was measured with the Codependency Assessment Tool (CODAT). Anxiety, depression, compulsivity and anger were measured with the Symptom Checklist-90-R (SCL-90-R). An Information Sheet was developed to obtain additional demographic and health related information.

This study used a model testing correlational design with psychology and sociology students recruited from the three campuses of a MS community college.

Students aged 18-65 were invited to participate with a stratified cluster random selection of class sections that included 1273 students. Over a three month period, class sections were given an explanation of the study and when possible, the students completed the questionnaires during a class period. If class time was not possible, the students were reminded in one week and the questionnaires retrieved in two weeks. A locked collection box was available in the classroom for students to leave questionnaires. Questionnaires were given to 810 students with 567 completing all four questionnaires. The majority of the sample was white (64.6%), female (65.6%), single (81.7%) with a mean age of 22.7. Small, not meaningful correlations were noted between overeating and the predictor variables of codependency, anxiety, depression, compulsivity and anger. Weak correlations were noted between age and anxiety (r= .12), age and depression (r= .20), age and compulsivity (r= .20), codependency and anxiety (r= .12) and codependency and anger (r =.16). No combination of predictor variables in the model predicted overeating and path analysis did not substantiate the causal paths in the original model. Although the model was not substantiated in this study, it was the first attempt to explore these variables in a single study and laid a foundation for future research. Subsequent studies, including qualitative inquiry, instrument development and replication with older participants or those with more codependency issues are needed. Although the predictive relationships were not verified in the model, the COM can continue to be used as a base for a program of nursing research, to guide future studies with different samples, utilizing different instruments, designs, and methodology. This study successfully utilized a research design with four instruments for a large sample, producing an excellent response rate and data entry quality control results. In addition, several important ways to minimize limitations in future studies were identified. Optimistically, the development and testing of the COM was the beginning step in pursuing a solid understanding of overeating and codependency and a catalyst for worthwhile future research.

INTRODUCTION

Introduction

Physical and psychological health problems resulting from codependency and overeating have been discussed at length in the health care literature. The connections between overeating, codependency and physical and psychological health problems are explored in this chapter. An explanation of the codependency-overeating model (COM) within the nursing framework of the Neuman System Model (NSM) is offered as well. The NSM provided the justification for the development and testing of the COM as a nursing research concern. The review of literature revealed that stressors were the origin of codependency and overeating. Neuman's model illustrates a system in which nursing is concerned with the total person, their stressors and the possible reactions to those stressors. According to the NSM, health problems are a concern to nursing, along with all the variables that affect a client's response to stressors. Guided by the NSM, a nurse can plan interventions to identify stressors, affect client responses to stressors, decrease client exposure to actual and potential environmental stressors and assist clients to adequately cope with stressors. After an explanation of the COM and the NSM, the connections between the nursing model and the COM are described and the background of the COM is set forth.

Overeating

Overeating is a significant problem for many Americans and leads to numerous physical, emotional, economic and social difficulties when overweight and obesity result (Wyatt, Winters, & Dubbert, 2006). Severe overeating is categorized as an eating disorder and is a common phenomenon in fast paced lifestyles where food is plentiful and social situations are centered around food (NIMI, 2003).

Discussions of cultural, environmental, socioeconomic, gender, hormonal and genetic links to overeating that lead to obesity abound (Bulik & Taylor, 2005; Gambon & DeLuca, 2008; Wyatt et al., 2006). Psychological and behavioral factors surrounding overeating are frequently noted in the literature (Gambon & DeLuca, 2008; Linde et al., 2004; Meyer, 1997) but are not emphasized in most prevention and treatment programs for overeating (Gambon & DeLuca, 2008). Current management strategies for overeating focus on lifestyle changes, such as diet, exercise and education regarding the adverse effects of being overweight or obese (Gambon & DeLuca, 2008).

As early as 1957, Hoffman cited disturbed emotions as a contributing factor to overeating that can lead to obesity. Hamburger (1960) noted that patients in his study ate in response to unmet emotional needs or to avoid emotional conflicts. In 2007, Hoeman agreed that overeating could be a self-medicating coping mechanism for emotional distress. The triggers cited for the learned pattern of overeating included unhealthy coping with issues from a dysfunctional family of origin, stress, depression, anger, frustration, anxiety, boredom, loneliness, guilt, self-hate, destructive thinking, and hopelessness (Gunstad et al., 2006; Hamburger, 1960; Masheb & Grilo, 2006; Popkess-Vawter, Brandau, & Straub, 1998; Riley, 1991). Many people occasionally eat for emotional reasons (Bulik & Taylor, 2005). If this behavior becomes the primary coping mechanism for reward, to soothe feelings, ease boredom or fatigue, problems can arise in numerous aspects of life. The use of compensating behaviors such as purging, excessive exercise, laxatives, enemas and diuretics that are sometimes used by overeaters to avoid weight gain also leads to additional health problems. Overeating acts as a feedback mechanism triggering the same feelings that prompted the initial behavior resulting in feelings of depression, guilt, anxiety, self-hatred, fear, low self-esteem and stress (Bulik & Taylor, 2005). Therefore, identification of the problematic emotional urges that trigger overeating is crucial in order to plan effective nursing interventions for clients with overweight issues.

Codependency

Codependency was a term first used in the chemical dependency literature to describe the dysfunctional pattern of behavior of an individual in a relationship with another person who is addicted to alcohol (Cermak, 1986a). Many descriptions of codependency exist in the literature (Cermak, 1986b; Crothers & Warren, 1996; Hughes-Hammer, Martsolf, & Zeller, 1998a, 1998b; O'Brien & Gaborit, 1992; Wegscheider-Cruse & Cruse, 1990; Whitfield, 1991). The following is a synthesis of those definitions. Codependency is a learned behavior from survival in a dysfunctional family of origin. This behavior results in the hiding and neglect of personal feelings, thoughts and needs. Boundary and control issues result in a focus on the control of others' needs, feelings and behavior and a dependence on others for emotional support and approval. Low self-worth and diminished personal identity lead to neglect of needs and negative physical,

emotional and psychological consequences leading to a multitude of health problems. The individual with codependent behaviors often becomes emotionally enmeshed in relationships with dysfunctional individuals (chemically addicted, personality or impulse disordered, codependent or compulsive) (Cermak, 1986b; Crothers & Warren, 1996; Hughes-Hammer et al., 1998a, 1998b; O'Brien & Gaborit, 1992; Wegscheider-Cruse & Cruse, 1990; Whitfield, 1991).

Several health risks are associated with codependency. Individuals suffering with codependency issues are susceptible to various stress-related medical problems along with the consequences of living in abusive and harmful relationships. Individuals suffering with codependency also experience psychological problems such as compulsive behavior, low self-esteem, anxiety and depression (Cermak, 1986b; Cullen & Carr, 1999; Hughes-Hammer et al., 1998a, 1998b; Schaef, 1986; Wegscheider-Cruse, 1985; Whitfield, 1991).

Codependency and Overeating

Many authors have linked overeating and/or eating disorders with codependency (Beattie, 1987; Bulik & Taylor, 2005; Cermak, 1986a, 1986b; Hamburger, 1960; Hoffman, 1957; Leon, 1977; Leon & Roth, 1977; Lyon & Greenberg, 1991; Lyons, 1998; Mellody, 1989; Meyer, 1997; Meyer & Russell, 1998; Minirth, Meier, Hemfelt & Sneed, 1990; Porterfield, 1994; Riley, 1991; Schaef, 1986; Stice, Presnell, Shaw, & Rohde, 2005; Subby, 1987; Wegscheider-Cruse, 1985; Wegscheider-Cruse & Cruse, 1990; Whitfield, 1989). Riley (1991) noted there is speculation in the literature that eating disorders, including overeating, are behavioral symptoms of codependency with commonalities in etiologies, clinical presentation, family dynamics and treatment approaches. Though there is a dearth of actual studies that address the complex interrelationships among many influencing factors to confirm this.

Prest and Storm (1988) noted the spouses of alcohol abusers experience anxiety, depression, insomnia and suicidal gestures along with eating disorders (Prest & Storm, 1988). Meyer (1997) examined the role of codependency in the relationship between stressful events and the development of eating disorders and found that women with an alcoholic significant other or in a chronic stressful situation had a higher prevalence of eating disorders. There was a positive correlation between number of codependency

characteristics and number of eating disordered behaviors (Meyer, 1997). Meyer and Russell (1998) compared 11 women described as codependents with 83 non-codependent women on eating disorder variables and found significant differences between their eating disorder symptoms. The subjects designated as codependent scored higher on 10 out of 11 eating disorder variables indicating that codependency is associated with more eating disorder symptoms (Meyer & Russell, 1998).

Allison (2005) studied the link between codependency and binge eating. She suggested codependency is a treatable syndrome and a precursor to other illnesses and addictions since women with codependency issues may use binge eating as a self-soothing behavior. Codependency was not found to be an independent contributor to BMI (body mass index) but exerted a significant indirect effect on BMI through binge eating in Caucasian women (2005). In her discussion, Allison suggested that early interventions for codependency could break the destructive cycle of binge eating and obesity. She also suggested future studies that test the reciprocal link between binge eating and codependency to include other ethnic groups and longitudinal designs.

As noted above, several authors have suggested the connection between codependency and overeating as reactions to stressful events. However, few studies have been conducted to explore this set of complex associations. The COM was developed to address the proposed relationship between codependency, overeating and the subsequent reactions of psychological and medical problems. The COM will clarify the relationship between these responses to environmental stressors.

Codependency-Overeating Model

The COM was developed from the Hughes-Hammer, Martsolf and Zeller Model of Codependency (1998) and the Bulik and Taylor Runaway Eating Merry-Go-Round (2005). Hughes-Hammer and Martsolf's Model was guided in part by the Wegscheider-Cruse and Cruse Codependency Model (1990). Each of these models is described below in the chronological order in which they were developed.

In 1990, Wegscheider-Cruse and Cruse conceptualized codependency to include three core symptoms: delusion, repression and compulsion, and three complications or associated symptoms: low self-worth, relationship problems and medical problems. The symptom of delusion is preceded by denial of events or feelings and is followed by

distortion of and dissociation from reality. Subsequently, emotional repression of feelings with chronic emotional pain ensues. A "free-floating" anger or anxiety leads to a craving for relief from feelings that are not clearly understood (Wegscheider-Cruse & Cruse, 1990, p. 36). A compulsion for pleasure, reward or relief to medicate the emotional pain leads to the need for chemical or behavioral medicators. Chemical medicators include alcohol, drugs, nicotine and sometimes sugar or caffeine. Behavioral medicators include work, eating, not eating, purging, relationships, sex, spending, gambling, controlling and caretaking (Wegscheider-Cruse & Cruse, 1990). Wegscheider-Cruse and Cruse's model, however, was based on the review of literature existing at that time but not on empirical research by these authors.

Wegscheider-Cruse and Cruse's conceptualization (1990), along with review of the existing codependency literature guided Hughes-Hammer and Martsolf (1998b) in the development of their Codependency Model (Figure 1). For their development and testing of the Codependency Assessment Tool (CODAT), Hughes-Hammer and Martsolf theorized codependency as a construct with five factors: other focus/self-neglect, family of origin issues, low self-worth, hiding self [repression and denial] and medical problems. One symptom, other focus/self-neglect, was identified as the core symptom and is central in the model. The three symptoms of family of origin issues, low self-worth, and hiding self [repression and denial] overlap with the core symptom. Medical problems were theorized as resulting from both the core and the other three symptoms.

Bulik and Taylor (2005) visualized Runaway Eating as a "never-ending cycle of thoughts, feelings, and behaviors that feed into each other and result in unhealthy eating behaviors…a vicious circle that gets stronger, more destructive, and more entrenched over time" (p. 68). The Bulik and Taylor model (Figure 2) depicted situational triggers that promote destructive thinking, which increases stress and triggers unhealthy eating behavior and brings about negative emotions.

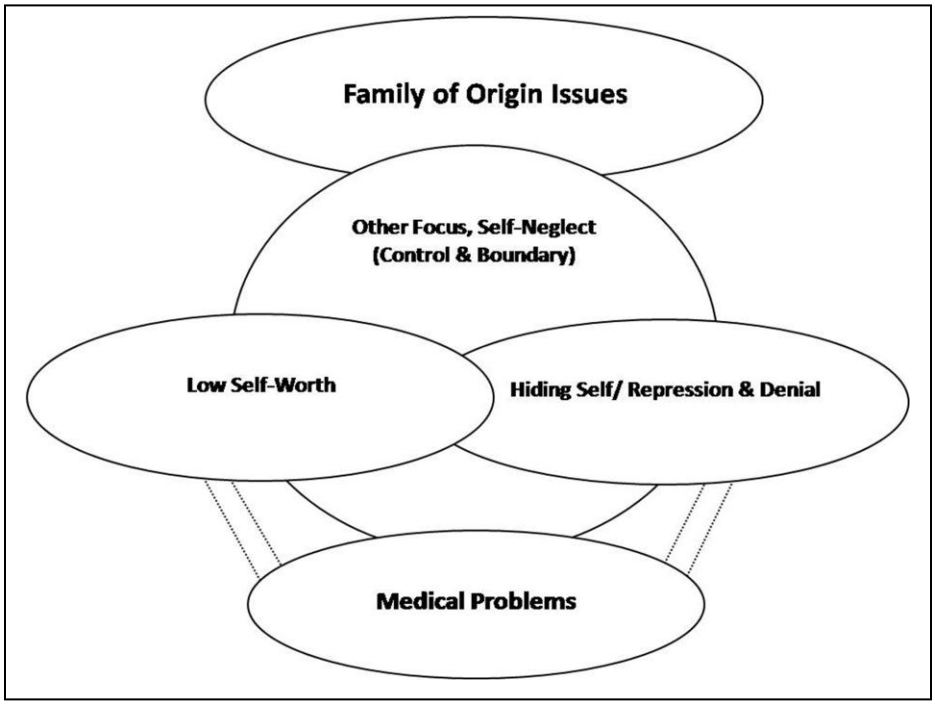

Figure 1. *Hughes-Hammer, Martsolf and Zeller Codependency Model. This figure illustrates the five factors that comprise the Hughes-Hammer, Martsolf and Zeller Codependency Model (1998b)*

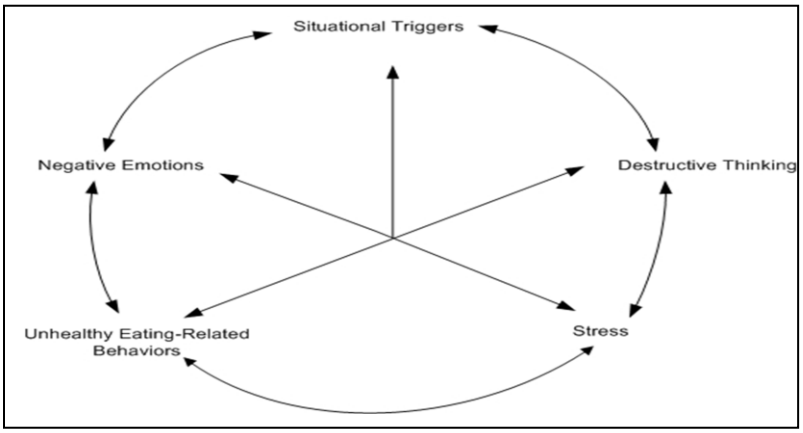

Figure 2. *Bulik and Taylor's Runaway Eating Merry-Go-Round (2005). This figure illustrates the cycle of thoughts, feelings and behaviors in the cycle of Runaway Eating.*

Bulik and Taylor's (2005) model guided the development of the COM by suggesting the relationship between the concepts of situational triggers, stressors, negative emotions, destructive thinking and unhealthy eating-related behaviors. Bulik and Taylor's (2005) model contained bidirectional relationships between the five factors. Further explanation of the components of the merry-go-round is provided in the conceptual definitions. To date there have been no quantitative studies published that test the relationships in the Bulik and Taylor model. The unidirectional relationships in the original theoretical COM (Figure 3) were based on the review of existing literature and personal experiences with overeating. After continued review of the existing studies that quantitatively investigated the relationship between the concepts in theoretical COM, the predictive COM (Figure 4) was developed.

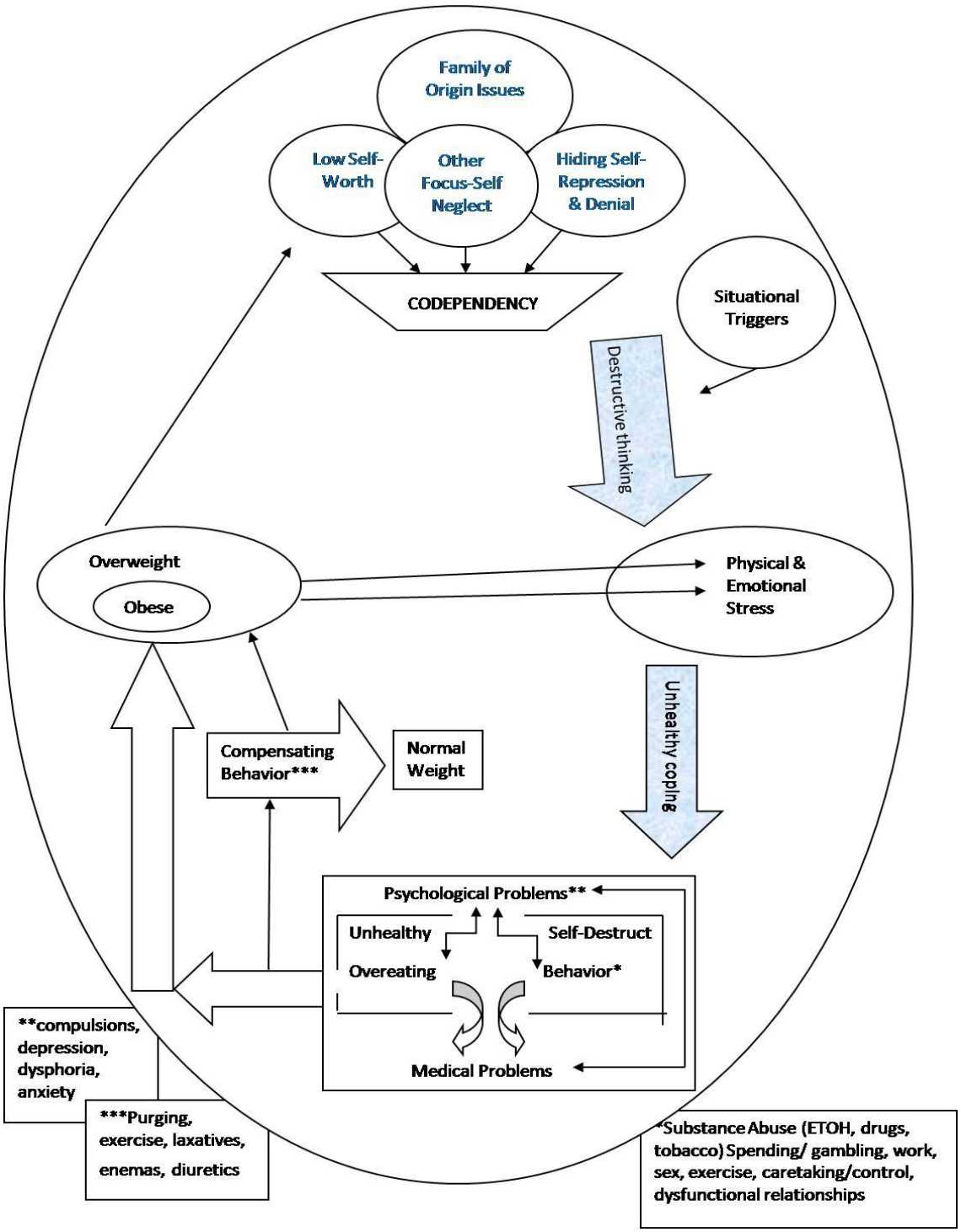

Figure 3. *Theoretical COM. This figure illustrates the relationship between the concepts in the theoretical Codependency-Overeating Model.*

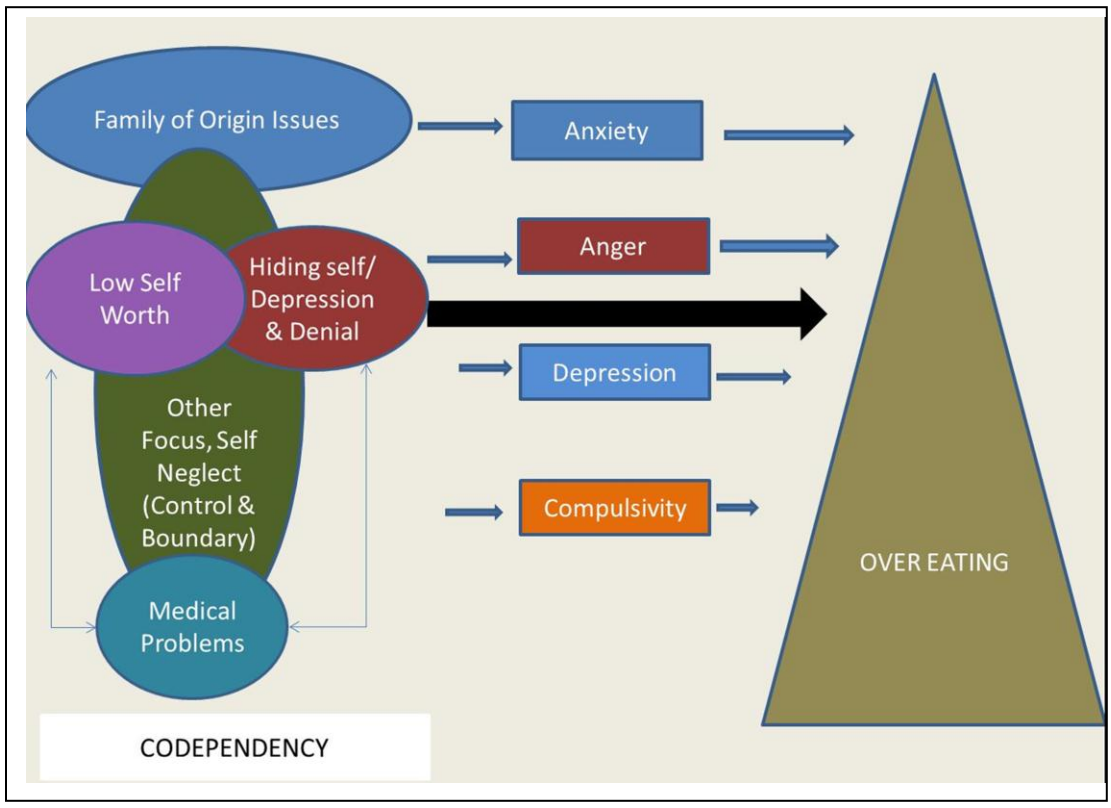

Figure 4. *Predictive COM. This figure illustrates the predictive Codependency-Overeating Model developed for testing in the current study.*

The contributing factors for codependency (family of origin issues, low self-worth, other focus-self-neglect, and hiding self [repression and denial] identified by Hughes-Hammer and Martsolf (1998b) led to destructive thinking. Situational triggers promote destructive thinking (Bulik & Taylor, 2005). As hypothesized in the model, destructive thinking increased stressors with physical and emotional aspects of stress become mutually intensifying. When physical and emotional stress were present and unhealthy coping mechanisms were utilized, the individual could start into the psychological and medical problem maze. In this maze, psychological and medical problems could trigger or intensify each other. Overeating and other self-destructive behaviors increased both psychological and medical problems. Psychological and medical problems also increased overeating and other self-destructive behavior. The pathway from this maze could lead to a normal weight if compensating behaviors such as purging, excessive exercise, laxatives, enemas or diuretics are employed. If the

compensation was only partially successful or not used, overweight occurs. Depending on the severity of the overeating, a subgroup of these individuals became obese. Individuals using compensating behavior were usually of normal weight or slightly overweight (Bulik & Taylor, 2005). The compensating behavior also led back to destructive thinking with feelings of disgust, guilt and shame (Bulik & Taylor, 2005).

After the theoretical COM was proposed, the literature was searched for correlations between the factors proposed in the model. Review of relevant empirical studies led to the Predictive Codependency-Overeating model (Figure 4).

The factors contained in the above predictive COM are described below. The connections between each of the factors in the model were substantiated with empirical studies discussed in detail in the Review of Literature.

Other focus. The core symptom of other focus/self-neglect in the Hughes-Hammer and Martsolf Codependency model was defined as "the compulsion to help or control events or people through manipulation or advice giving [and] focuses on control and boundary issues" (Hughes-Hammer et al., 1998b, p. 265). Several authors agreed with these defining characteristics of codependency as a distortion of boundaries with others including jealousy, rescuing and caretaking behavior and a lack of autonomy (Hughes-Hammer et al., 1998a; O'Brien & Gaborit, 1992; Wright & Wright, 1991). Personal needs were neglected, communication was faulty and the individual was enmeshed with others (Cermak, 1986a, 1986b; O'Brien & Gaborit, 1992; Roehling & Gaumond, 1996; Wright & Wright, 1990; Wright & Wright, 1991). Denial was also one of the issues of codependency in which self-expression was inhibited, blame was externalized, and difficulties minimized with unrealistic positive expectations. The Hughes-Hammer and Martsolf model named this symptom hiding self [repression and denial].

Family of origin issues. Family of origin issues were defined as "current unhappiness as a result of growing up in a family that was troubled, chemically dependent, or overwrought with problems in which thoughts and feelings were not expressed and discussed and in which affection was not openly displayed" (Hughes-Hammer et al., 1998b, p. 266). The chaos and perceived rejection in these families led to survival behavior and issues of control, caretaking and shame (Wegscheider-Cruse &

Cruse, 1990). Individuals raised in an environment of shame also had feelings of self-criticism, self-blame and humiliation that leads to low self-worth.

Medical problems. Hughes-Hammer et al.(1998b) defined medical problems as a "sense of current ill health when compared with family and friends, accompanied by worry and preoccupation with real or imagined health difficulties and impending body failure" (p. 266). These stress-related or psychosomatic illnesses included headaches, backaches, muscle tension, chronic fatigue syndrome, cardiac problems including myocardial infarction and dysrrhythmias. Other illnesses include asthma and other respiratory problems, strokes, gastritis, peptic ulcers, ulcerative colitis, spastic colon, rheumatoid arthritis, sexual dysfunction, and an increased susceptibility to diseases such as cancer due to a suppressed immune system (Cermak, 1986a; Schaef, 1986; Wegscheider-Cruse, 1985; Whitfield, 1991).

Bulik and Taylor (2005) described negative emotions as "out-of-control feelings" that begin or are the result of runaway eating. Various terms existed to describe the vast emotions associated with codependency. These negative emotions included depression, guilt, anxiety, self-hatred, fear and low self-esteem. Other negative emotions noted in the literature include tiredness, anger, emptiness, hopelessness, worry, dissatisfaction, irritability and boredom (Hill, Weaver, & Blundell, 1991; Schlundt, Hill, Sbrocco, Pope-Cordle, & Kasser, 1990; Stickney, Miltenberger, & Wolff, 1999). Arnow, Kenardy and Agras' (1995) results from the factor analysis used to develop the Emotional Eating Scale were used to organize the vast range of emotions associated with codependency in the COM. These psychological problems/negative moods included anxiety, (associated emotions: jittery, on edge, shaky, nervous, excited, uneasy, worried, upset, confused, dissatisfied) depression, (associated emotions: lonely, bored, sad, blue, worn out, tired, hopeless, empty) anger/frustration, (associated emotions: discouraged, guilty, irritated, furious, inadequate, helpless, resentful, jealous, rebellious, self-hatred) and compulsivity.

Other psychological problems were noted in the literature; however, these were not addressed in the model. Cullen and Carr (1999) noted more psychological adjustment problems in the codependency group in their study. Hinkin and Kahn (1995) found interpersonal sensitivity, hostility, paranoid ideation, psychasthenia, schizophrenia, hypomania, hysteria associated with codependency (Hinkin & Kahn, 1995). Gotham and

Sher (1996) also noted psychoticism, as well as paranoid ideation, in codependent individuals. Psychotic disorders were excluded due to the difficulty of obtaining data from these subjects. In addition, the Codependency-Overeating model was a large model and it was beyond the scope of this study to include every conceivable psychological problem, negative mood or emotion.

Overeating

Overeating is a serious disturbance in eating behavior (NIMH, 2003). Bulik and Taylor (2005) defined overeating as eating more than the body needs to maintain health and a normal body weight while Popkess-Vawter, Brandau & Straub (1998) defined it as the taking in of excessive food without hunger until feeling physically uncomfortable. Bulik and Taylor (2005) also differentiated between the eating behaviors of overeating, binge runaway eating and binge-eating disorder. They stated these unhealthy behaviors exist on a continuum without definite boundaries. Binge runaway eating was described as occasionally eating unusually large amounts in a short time while feeling out of control. The difference between this type of binge eating and a binge-eating disorder is the frequency or duration of the binge. Individuals with a diagnosed binge eating disorder (BED) engage in the behavior at least 2 days per week for 6 months or longer (Bulik & Taylor, 2005).

Problem Statement

Overeating is a significant problem with a multitude of contributing factors. Negative emotions are identified as one of these factors but are not emphasized in treatment approaches. The concept of codependency has expanded past the addiction field and renders an individual susceptible to a myriad of health problems. Overeating has been linked to codependency; however, few studies have been conducted to explore this link. Codependency, overeating, psychological problems and the resultant health problems associated with each are negative reactions to stressors within an individual's life. With enhanced knowledge of the connections between these phenomena nurses are in a unique position to intervene and assist the client to adapt and ultimately achieve maximum wellness.

A model for overeating related to emotional factors existed but not based on empirical studies. The model of codependency was developed based on research;

however, no model has been developed that proposed predictive relationship(s) between codependency and overeating.

Obviously, there was a gap in the literature regarding the relationship between overeating, codependency and the many potential confounding variables that exist. The COM offered a framework for exploring proposed relationships between and among overeating and the antecedents, symptoms and complications of codependency. The substantial problem of overeating and codependency along with the scarcity of empirical studies called for more research in this area.

Purpose

The purpose of this study was to test the COM to support or confirm the proposed relationship between codependency and overeating. No model existed to explore the complex interactions between codependency and overeating. A clearer understanding of this relationship was needed. The literature gap was apparent and a useful contribution could be made by the development and testing of the COM proposed in this study.

Research Questions

The Research Questions were as follows:

1. Did any single predictor variable (codependency, anxiety, depression, anger, compulsivity), codependency symptom (family of origin issues, other focus, self-worth, hiding self, medical problems), demographic or health related characteristic predict overeating?
2. Were the causal paths to overeating in the original predictive model supported? What model of predictor variables (including their direct and indirect effects) best predicted overeating?

Nursing Theoretical Framework-The Neuman Systems Model

The nursing theoretical framework for this study was the Neuman Systems Model (NSM). The aim of the NSM is to provide a total person approach and a “unifying focus for approaching varied nursing problems" (Neuman, 1982, p. 14). Using the 3-step nursing process of diagnosis, goals and outcomes to bring about reconstitution and health promotion, Neuman’s model directs nursing actions to assist individuals, families and groups to identify and reduce stress factors and decrease adverse conditions that affect or could affect optimal functioning (Neuman, 1982). The NSM also “focuses attention on

the response of the client system to actual or potential environmental stressors, and the use of primary, secondary, and tertiary nursing prevention interventions for retention, attainment, and maintenance of optimal client system wellness" (Neuman, 1996, p. 67). Nursing interventions are purposeful and designed to retain, attain and maintain optimal client system stability with the nursing goals negotiated with the client (Neuman, 1982). The ultimate goal is the highest possible health condition or the maximum level of total wellness. (Neuman, 1996; Ume-Nwagbo, DeWan, & Lowry, 2006).

Client-Client System

The Neuman Systems Model (NSM) is "intended to represent an individual who is subject to the impact of stressors" but can also be used to "study the response of a group or community to stressors" (Neuman, 1982, p. 12). Every individual is unique with common characteristics within a given range of responses and in constant action with their environment. The client-client system consists of the flexible line of defense, the normal line of defense, lines of resistance and the basic structure energy resources. In each circle that makes up the client-client system, five variables are considered simultaneously. These five NSM variables are: physiological, psychological, socio-cultural, developmental, and spiritual. The five NSM variables are present in all client systems in varying degrees of development. Physiological refers to bodily structure and function, psychological to mental processes and relationships, socio-cultural to combined social and cultural functions, and developmental to life-developmental processes. The fifth NSM variable, spiritual, refers to the influence of spiritual belief. The spiritual variable exists on a continuum of development and interacts either negatively or positively with the other variables. The spiritual variable can range from a complete unawareness of the variable by the client to a highly developed spiritual understanding that supports optimal wellness (Neuman, 1982).

Stressors

The NSM defines stressors as "the various disrupting forces operating within or upon" a system. (Neuman, 1996, p. 9) The basis of the model is the client's reaction to stress along with the ability to adapt to the stressor (reconstitution). Homeostasis is the "state of balance requiring energy in which the system is able to adequately cope with a stressor to regain optimal state of health following the reaction to a stressor thus

preserving system integrity" (Neuman, 1996, p. 9). Many stressors exist in the environment and are all different in their potential to disturb health equilibrium. Stressors affect and are affected by the responses to them and are either noxious or beneficial. The individual's state of health and wellness is a dynamic composite of the interrelationship of the physiologic, psychological, sociocultural, developmental and spiritual variables. This composite affects the degree to which a defense from the reaction to a stress or stressors can be launched. The 3 types of stressors include: 1. Intrapersonal-within the individual (conditioned responses); 2. Interpersonal-between one or more individuals (role expectations); 3. Extrapersonal-outside individual (financial, employment) (Neuman, 1982).

The strength of the individual's lines of defense and lines of resistance determine whether or not a stressor causes a negative reaction. If a stressor breaks through the normal line of defense (NLD), the set of resistance factors try to stabilize and return to the NLD. The strength of the flexible line of defense (FLD) determines whether or not a negative reaction occurs to the stressor. The relationship of a person's variables (physiologic, psychological, socio-cultural, and developmental) at any point can affect the degree to which one is able to use the FLD against the possible reaction of stress(ors) (Neuman, 1982).

Flexible line of defense (FLD)/Normal line of defense (NLD)/Lines of resistance (LOR)

The flexible line of defense (FLD) is a protective buffer system to protect the normal line of defense (NLD) (or equilibrium) and prevent stressors from invading the client system. "When the cushioning, accordion-like effect of the flexible line of defense is no longer capable of protecting the client-client system against an environmental stressor, the stressor breaks through the normal line of defense" (Neuman, 1982, p. 12). The effectiveness of the FLD depends on how close or far away it expands from the NLD. Single or multiples stressors such as lack of sleep, poor nutrition or dehydration can move the FLD closer to the NLD and increase the possibility for stressors to penetrate the NLD. The nature and degree of the reaction to the stressor is determined by the interrelationship of the physiologic, psychological, socio-cultural and developmental variables. The dynamic NLD represents the normal range of responses or usual state of

wellness with an ability to expand and contract over time. The client's internal set of resistance factors called the lines of resistance contain known and unknown internal and external resources. Lines of resistance include the body's mobilization of white blood cells and activation of the immune system. These resources protect the system integrity by supporting the basic structure and the NLD. If a stressor breaks through the lines of resistance, the lines of resistance will attempt to stabilize and return the system to the NLD. If the NLD is penetrated by a stressor, signs and/or symptoms occur that indicate a degree of reaction to the stressor. If the lines of resistance are effective, the client could have a decreased or actual reversal of the reaction to a stressor with system reconstitution and a return to system stability. A level of wellness, higher or lower than that prior to the stressor penetration, will be attained. If the lines of resistance are ineffective, death can occur due to energy depletion (Neuman, 1982).

Environment

The environment is defined by Neuman as "all internal and external factors or influences surrounding the identified client or client system" and "consists of the internal and external forces surrounding man at any point in time" (Neuman, 1996, p. 9). Nursing actions can be planned to assess the nature of the created environment, extent of the use and value to the client, and the ideal environment that is needed or possible for system protection, stability and integrity. Purposeful interventions can then be implemented to support the created environment.

Neuman defines health or wellness as "the condition in which all parts and subparts (variables) are in harmony with the whole of man. Disharmony reduces the wellness state" (Neuman, 1982, p. 9). Health is reflected in the level of wellness achieved with optimal wellness reached when all needs are met. Wellness and illness are on opposite ends of a continuum. Nursing interventions should be designed to assist the client to move toward wellness and away from illness on that continuum (Neuman, 1982).

Nursing

In the NSM, nursing is depicted as a unique profession, concerned with all of the variables affecting the client's response to stressors with the ultimate goal of reconstitution and health promotion. Using the 3-step nursing process of diagnosis, goals and outcomes, interventions are designed to attain or maintain balance in the client-client system. Interventions are divided into primary prevention, secondary prevention and tertiary prevention and can be initiated when stressors or either identified or suspected. Primary prevention interventions are devised to identify and allay possible risk factors associated with stressors by reducing the possible encounters with the stressor or strengthening the client's FLD. Secondary prevention interventions are proposed to find cases early, treat symptoms and appropriately prioritize actions. The aim of tertiary prevention includes re-adaptation as reconstitution is initiated, maintenance of stability and re-education to prevent future occurrences (Neuman, 1982).

The research issue in this predictive study is framed from the perspective of the NSM. In the section below, codependency and then overeating is described within the context of the NSM. The relationship between codependency and overeating is then explained from a NSM standpoint.

Within the framework of the NSM, codependency is the result of a reaction to stress and part of the client's created environment. The client system is subjected to stressors or disruptive forces within the external environment. The forces are interpersonal from the conflicts within the dysfunctional relationship of family and/or significant other and extrapersonal forces of employment and financial problems due to substance abuse. The individual reflexively creates the pattern of codependency (learned behavior) as insulation against the response to the stress of being in dysfunctional relationships. Since individuals are unique and stressors have various impacts and reactions, not all individuals with codependency display the same behaviors. This codependent behavior, however, has a negative effect, since energy is used to cope and when more energy is utilized than produced, illness occurs.

Based on the NSM, overeating is the negative reaction by a client system when stressors penetrate the lines of defense and lines of resistance. The psychological, cultural, environmental, socioeconomic, gender, hormonal and genetic links to overeating

noted in the literature correspond with the physiologic, psychological, socio-cultural and developmental variables that formulate the client system in the NSM. The NSM clarified why some individuals overeat when confronted with stress, while others do not.

Within the context of the NSM, overeating and codependency emerged as reactions to stressors within the client system. These stressors occurred from conflicts with dysfunctional family members or significant others and coupled with a lack of protection against those stressors by the client's lines of defense and lines of resistance, behavioral reactions of codependency and overeating could occur.

The NSM was chosen as the model to frame the COM within a nursing perspective based on the above descriptions of the COM seen through the lens of the NSM. The results of this study are described in subsequent chapters along with the meaning of those findings. In addition, the practice implications that prepare the nurse to influence the client system toward protection, stability and integrity are addressed.

The definitions for the demographic variables and health related variables are given in Tables 1 and 2 respectively. The definitions of the predictor variables are defined after these variables.

Definitions

Table 1

Definitions, Measurements and Instruments Used for Demographic Variables

Variable	Definition	Measurement	Instrument
Age	"The length an existence extending from birth to any given time" (Merriam-Webster, 1998, p. 22).	Self-report in number of years	CODAT (Part 1) Appendix A
Race	A division of mankind possessing traits that are transmissible by descent and sufficient to characterize it as a distinct human type" (Merriam-Webster, 1998, p. 961).	Self-report (in blank space)	CODAT (Part 1)
Sex	"Either of the two major forms of individuals that occur in many species and that are	Self-report as male or female	CODAT (Part 1)

	distinguished respectively as female or male" (Merriam-Webster, 1998, p. 1073).		
Religion	"The service and worship of God or the supernatural, a cause, principle or system of beliefs held to with ardor and faith" (Merriam-Webster, 1998, p. 988).	Self-report (in blank space)	CODAT (Part 1)
Practicing (of religion)	"To do or perform often, customarily, or habitually"(Merriam-Webster, 1998).	Self-report as practicing or non-practicing	CODAT (Part 1)
Marital status	"Relating to marriage or the married state" Marriage-"the institution whereby men and women are joined in a special kind of social and legal dependence for the purpose of founding and maintaining a family" (Merriam-Webster, 1998, p. 713).	Self-report as single, married, divorced, widowed or separated	CODAT (Part 1)
Number of children	Children-"Son or daughter of human parents"(Merriam-Webster, 1998, p. 198).	Self-reported number	CODAT (Part 1)
Occupation	"The principal business of one's life" (Merriam-Webster, 1998, p. 804).	Self-report (in blank space)	CODAT (Part 1)
Employed	"A job that pays wages or a salary" (Merriam-Webster, 1998, p. 379).	Self-report as yes or no	CODAT (Part 1)
Level of education	"The knowledge and development resulting from an educational process-to train by formal instruction and supervised practice especially in a skill, trade, or profession" (Merriam-Webster, 1998, p. 367).	Self-report (in blank space)	CODAT (Part 1)
Income	"A gain or recurrent benefit usually measured in money that derives from capital or labor-the amount of such gain received in a period of time"	Self-report from less than $500 per month to more than $4000 per month in $250 to $500 increments	Information Sheet (Appendix B)

	(Merriam-Webster, 1998, p. 588).		
Academic degree	"A title conferred on students by a college, university, or professional school on completion of a program of study" (Merriam-Webster, 1998, p. 304).	Self-report with yes/no to previous degree. Type of degree and major specified in blank space	Information Sheet
Current major	"A subject of academic study chosen as a field of specialization" (Merriam-Webster, 1998, p. 702).	Self-report (in blank space)	Information Sheet
Academic standing	Freshman-"first year student"(Merriam-Webster, 1998, p. 466). Sophomore-"student in the second year at college" (Merriam-Webster, 1998, p. 1121).	Self-report as freshman or sophomore	Information Sheet

Table 2

Definitions, Measurements and Instruments Used for Health Related Variable

Variable	Definition	Measurement	Instrument
Pregnancy	"The condition of being pregnant-containing unborn young within the body" (Merriam-Webster, 1998, p. 919).	Self-report with yes/no answer.	Information Sheet
Eating disorders	Severe disturbance in eating behavior, such as extreme reduction of food intake or extreme overeating or feelings of extreme distress or concern about body weight or shape. Includes anorexia, bulimia nervosa and eating disorders not otherwise specified which includes several variations of eating disorders such as binge-eating disorder (NIMH, 2009).	Self-report as yes/no with blank requesting explanation	Information Sheet
Surgical procedures	History of bariatric surgery (lap band or gastric bypass surgery) or other surgeries that decrease stomach size.	Self-report by circling procedure Description requested for	Information Sheet

Variable	Definition	Measurement	Instrument
		"other surgery that decreased stomach size" with blank provided.	
Medical conditions	Diagnosis of gastroparesis or other conditions that affect appetite, absorption or digestion. History of medical conditions of diabetes, hypoglycemia, thyroid problems, heart disease or cancer.	Self-report by circling procedure. Description requested for "any condition that affects appetite, absorption or digestion of food" with blank provided.	Information Sheet
Underweight	BMI < 18.5 (CDC, 2010)	Will be measured with self-reported height and weight. BMI (body mass index) will be calculated by weight in kilograms/height in meters^2 (CDC, 2010).	Information Sheet
Normal weight	BMI 18.5 to 24.9 (CDC, 2010)	Measured with self-reported height and weight. BMI will be calculated by weight in kilograms/height in meters^2 (CDC, 2010).	Information Sheet
Overweight	BMI 25.0 to 29.9 (CDC, 2010)	Measured with self-reported height and weight. BMI will be calculated by weight in kilograms/height in meters^2 (CDC, 2010).	Information Sheet
Obese	BMI >30.0 (CDC, 2010)	Measured with self-reported height and weight.	Information Sheet

Variable	Definition	Measurement	Instrument
		BMI will be calculated by weight in kilograms/height in meters^2 (CDC, 2010).	
Alcohol/drug problem	Alcohol-"ethanol especially when considered as the intoxicating agent in fermented and distilled liquors". (Merriam-Webster, 1998, p. 27). Drug-"Something and often an illegal substance that causes addiction, habituation, or a marked change in consciousness" (Merriam-Webster, 1998, p. 355). Problem- "a source of perplexity, distress, or vexation or difficulty in understanding or accepting" (Merriam-Webster, 1998, p. 929).	Past or present problems with the use of drugs or alcohol will be assessed by self-report with a yes/no answer These include the use by the subject, their spouse or significant other, and parents	CODAT (Part 1)
Mental health problems	Mental disorder-"a group of behavioral or psychological symptoms or a pattern that manifests itself in significant distress, impaired functioning, or accentuation risk of enduring suffering or possible death" (Smeltzer & Bare, 2000, p. 91).	Blanks provided for previous hospitalizations for mental health problems, number of previous hospitalizations with reason for hospitalization and name of condition(s)	CODAT (Part 1)
Residence (State and county)	(Adult) The place where he or she physically resides with the intention of remaining indefinitely (NWCC Bulletin, 2011).	Self-report (in blank space)	Information Sheet
Online classes	Computer-based (not campus-based) course option available through the Mississippi Virtual Community College System (NWCC Bulletin, 2011).	Self-report	Information Sheet
ACT® score	Trademark for a standardized college readiness score-tests educational development (ACT, 2011).	Self-report (in blank space)	Information Sheet

Operational definitions for predictor variables are discussed below.

Codependency

Merriam-Webster defined codependency as "a psychological condition or a relationship in which a person is controlled or manipulated by another who is affected with a pathological condition (as an addiction to alcohol or heroin)" (Merriam-Webster, 1998, p. 211). Many descriptions of codependency by experts in the psychological and addiction fields were found with the following definition presented as a synthesis of these descriptions. Codependency is a learned behavior from survival in a dysfunctional family of origin. This behavior results in the hiding and neglect of personal feelings, thoughts and needs. Boundary and control issues result in a focus on the control of others' needs, feelings and behavior and a dependence on others for emotional support and approval. Low self-worth and diminished personal identity lead to neglect of needs and negative physical, emotional and psychological consequences. The individual with codependent behaviors often becomes emotionally enmeshed in relationships with dysfunctional individuals (chemically addicted, personality or impulse disordered, codependent or compulsive) (Cermak, 1986b; Crothers & Warren, 1996; Hughes-Hammer et al., 1998a, 1998b; O'Brien & Gaborit, 1992; Wegscheider-Cruse & Cruse, 1990; Whitfield, 1991).

Codependency was measured by Part 2 of the CODAT (The Codependency Assessment Tool) which is presented in Appendix A (Hughes-Hammer et al., 1998a). The CODAT is a 25 item 5-point Likert format questionnaire.

Overeating

The operational definition of overeating was "to eat to excess" (Merriam-Webster, 1998, p. 829). Overeating was measured by self-report on the 80-item Overeating Questionnaire (Appendix C). The Overeating Questionnaire measured key habits, thoughts and attitudes related to obesity.

Psychological problems

Psychological ("directed toward the will or toward the mind") (Merriam-Webster, 1998, p. 943) problems for this study were anxiety, depression, anger and compulsivity. A problem was "a source of perplexity, distress, or vexation or difficulty in understanding or accepting" (Merriam-Webster, 1998, p. 929).

Anxiety. "Painful or apprehensive uneasiness of mind, fearful concern or interest, an abnormal and overwhelming sense of apprehension and fear" (Merriam-Webster, 1998, p. 53) and was measured with the SCL-90-R (Appendix D) Anxiety symptom scale.

Depression. "A psychoneurotic or psychotic disorder marked especially by sadness, inactivity, difficulty in thinking and concentration, a significant increase or decrease in appetite and time spent sleeping, feelings of dejection and hopelessness, and sometimes suicidal tendencies" (Merriam-Webster, 1998, p. 311) and was measured with the SCL-90-R Depression symptom scale.

Anger. "A strong feeling of displeasure and usually of antagonism" (Merriam-Webster, 1998, p. 44) and was measured with the SCL-90-R Hostility symptom scale.

Compulsivity. "Relating to, caused by or suggestive of psychological compulsion or obsession". A compulsion was "an irresistible impulse to perform an irrational act" (Merriam-Webster, 1998, p. 237) and was measured with the SCL-90-R Obsessive-Compulsive symptom scale.

Psychological problems were measured by self-report of present or previous mental health problems on Part 1 of the CODAT (The Codependency Assessment Tool). Specific psychological problems in the predictive model were measured with the Symptom Checklist-90-Revised (SCL-90-R) found in Appendix D. The SCL-90-R is a 90-item self-report Likert format questionnaire. Additional psychological problems not included in the model assessed by the SCL-90-R include somatization, interpersonal sensitivity, paranoid ideation and psychoticism.

Assumptions

Two assumptions underpinned this study:

1. Overeating is an unhealthy behavior with negative consequences.
2. Codependency is an undesirable behavior with negative consequences necessitating interventions.

Significance of the Study

Extensive research is evident in the codependency and overeating arena, however, a gap in the specific links between these two issues continues to exist. The ultimate goal for improved understanding of the links between codependency, anxiety, depression,

anger, compulsivity and overeating is improved patient care and more effective treatment approaches. Previous research in these areas was retrospective and not predictive. The COM proposed in this study was an original model that had not been previously proposed or tested. The model was based on empirical studies and was the next logical step in the attempt to understand the relationship between these phenomena.

REVIEW OF THE LITERATURE

Review of the Literature

This study sought to refute or substantiate the proposed relationship between overeating and codependency by testing the Codependency-Overeating Model. Chapter 1 focused on the problem of overeating and codependency and the lack of empirical evidence for the link between these two concepts. The background for the model was outlined, including the models used to guide development of the theoretical model that led to the predictive model that was tested in this study. The format of this chapter includes the search history of the literature reviewed, an examination of the key concepts of codependency and overeating followed by an in-depth review of the extant literature.

Review of Literature Search History

The literature search for this section began early in the doctoral program at UMMC. The psychological links to obesity were the focus of all work during the courses that led to the dissertation phase. As literature was reviewed, an interest in codependency and the overeating that leads to obesity developed. References from books on codependency and overeating were searched. Citations were cross-referenced, evaluated for relevance, and included in the literature review as deemed appropriate.

The text is organized according to the links proposed in the Codependency-Overeating Predictive Model with a table following each section for the studies that substantiate each link in the model. The following table outlines the search history for the literature found in this chapter. Since many searches were done during coursework, an updated search was recently completed and is reflected in Table 3.

Table 3

Literature Search History

Search Engine	Health Source: Nursing Academic Edition + CINAHL/ (year range available) (NWCC)	Proquest-all sources/ all years (NWCC)	Ovid (UMMC)	PubMed (limited to English, human and words in title/ abstract) (UMMC)	Comments
Anger	5471	2276			Search narrowed to specific areas
Anxiety	31182	10820			Search narrowed to specific area
Anxiety+ Overeating	14 (1984-2009)	9		385	Reviewed all from Health Source and Proquest/Scanned recent PubMed results for pertinence
Binge Eating	712 (1983-2009) (limited to scholarly journals)			43 (past search-not updated)	Focus on binge eating-a specific eating disorder-few articles used
Codependency	234 (1986-2009)	63 41(limited to	28	219	Reviewed all

Search Engine	Health Source: Nursing Academic Edition + CINAHL/ (year range available) (NWCC)	Proquest-all sources/ all years (NWCC)	Ovid (UMMC)	PubMed (limited to English, human and words in title/ abstract) (UMMC)	Comments
	191 (limited to scholarly journals) 37(further limited to 2004-2009)	scholarly journals)			
Codependency + Anger	2 (limited to scholarly journals)	1		4	Reviewed all
Codependency + Anxiety	2 (1991-2009) (limited to scholarly journals)	3		9	Reviewed all
Codependency + Overeating	0	0	2	4	Reviewed all
Compulsive	3784 (1958-2009)	898			Search narrowed to specific area
Compulsive +	11	2		8	Reviewed all

Search Engine	Health Source: Nursing Academic Edition + CINAHL/ (year range available) (NWCC)	Proquest-all sources/ all years (NWCC)	Ovid (UMMC)	PubMed (limited to English, human and words in title/ abstract) (UMMC)	Comments
Codependency	(1990-2009)				
Compulsive + Eating	407 (1977-2009) 216 (2004-2009)	111		175	Scanned recent articles from Health Source, Proquest and PubMed results for pertinence
Compulsivity	101 (1988-2009)	27			Scanned recent articles from Health Source/Proquest
Depression	61131	23008			Search narrowed to specific area
Depression + Codependency	14 (1990-2009)	4		14	Reviewed all
Depression + Overeating	24 (1991-2009)	14		1175	Reviewed all from Health Source and Proquest/Scanned recent PubMed results for pertinence

Search Engine	Health Source: Nursing Academic Edition + CINAHL/ (year range available) (NWCC)	Proquest-all sources/ all years (NWCC)	Ovid (UMMC)	PubMed (limited to English, human and words in title/ abstract) (UMMC)	Comments
Eating Disorders	4976 (1969-2009) (limited to scholarly journals)		200		Focus on anorexia and bulimia-not pertinent
Food Addiction	8 (1992-2009) (limited to scholarly journals)			8 (past search-not updated)	Reviewed all
Obesity			183509		Many articles reviewed-topic not always specifically obesity
Obesity + Codependency	3 (2004-2009)		10	1	Reviewed all
Overeating	350 (1966-2009)	237 97 (limited to		656	All recent/scholarly articles reviewed

Search Engine	Health Source: Nursing Academic Edition + CINAHL/ (year range available) (NWCC)	Proquest-all sources/ all years (NWCC)	Ovid (UMMC)	PubMed (limited to English, human and words in title/ abstract) (UMMC)	Comments
	186 (2004-2009)	scholarly journals)			
Overeating or Hyperphagia	626 (1966-2009) 497(limited to scholarly journals)	484 222 (limited to scholarly journals)	3232		Searched narrowed to specific areas
Psychological problems	1019	338 230 (limited to scholarly journals)		25072	Search narrowed to specific areas
Psychological problems + codependency	0	0		7	Reviewed all
Psychological problems + eating	32 (1986-2009)	7		507	Reviewed all from Health Source and Proquest/Scanned recent PubMed results for pertinence
Psychological	0	1		96	Reviewed Proquest

Search Engine	Health Source: Nursing Academic Edition + CINAHL/ (year range available) (NWCC)	Proquest-all sources/ all years (NWCC)	Ovid (UMMC)	PubMed (limited to English, human and words in title/ abstract) (UMMC)	Comments
problems + overeating					article/ Scanned recent articles from PubMed

In addition to the above, Project CORK bibliography for codependency was reviewed which revealed 58 articles.

Relationships in Codependency-Overeating Predictive Model

The dimensions of codependency were first conceptualized by Wegscheider-Cruse and Cruse (1990) and revised by Hughes-Hammer, Martsolf and Zeller in 1998. A new model emerged based on the empirical results from their development and testing of the Codependency Assessment Tool (CODAT). Content validity was established by eight experts in the codependency and alcohol treatment fields. After experts made suggestions, items were revised with 70 omitted. The same experts rated the relevancy of each item on the revised instrument. The instrument demonstrated good internal consistency (α=.78 to .91) and test-retest reliability (.78 to .94). The use of known groups established criterion validity and a comparison of codependency dimensions with depression established construct validity (Hughes-Hammer et al., 1998b). The validity and reliability of the instrument is presented as evidence to support the proposed relationship of codependency with other focus/self-neglect, low self-worth, hiding self [repression and denial], medical problems and family of origin issues in the Codependency-Overeating Model. Additional studies have been found to support the link between codependency and each of the five factors. These studies are discussed in the following section and are presented in Table 4. Standard deviation (SD), correlation coefficient (r), validity and reliability information is listed in table if authors reported in article.

Studies Confirming the Factors from the Hughes-Hammer, Martsolf and Zeller Model of Codependency (1998b)

Numerous studies support the factors in the Hughes-Hammer, Martsolf and Zeller (1998b) Model of Codependency. Each dimension of codependency is discussed in the following sections. These dimensions include family of origin issues, hiding self [repression and denial], other focus/self-neglect and low self-worth. Table 4 follows these sections and describes the purpose, sample, design, analysis, instruments and findings/conclusions of each study.

Family of origin issues and codependency. Issues in the family of origin have been extensively studied and positively correlated with codependency in all the studies found in this review of literature. Eight studies were found that link the chronic stress from the family of origin issues with codependency. Parental issues that instigate

codependency discussed in the following section include alcoholism, communication, abuse, mental health problems, coerciveness, compulsivity, control and codependency. Other family of origin issues cited includes triangulation, intimidation, intimacy, individuation and personal authority. The details of each study substantiating the links are presented in Table 4.

Meyer (1997) supported the views of Morgan (1991) and O'Brien and Gaborit (1992) that codependency is a "coping mechanism used to escape the negative feelings of growing up in a constrained, volatile family environment" (Meyer, 1997, p. 113) (Morgan, 1991; O'Brien & Gaborit, 1992). Meyer noted codependents were more likely to have experienced a chronic stressful event, such as an association with an alcoholic family member, than non-codependents. This view of codependency as significantly related to problems in the family, including substance abuse, is substantiated by several studies (Carson & Baker, 1994; Gotham & Sher, 1996; Harkness, 2001; Zuboff-Rosenzweig, 1996). Other stressful events in the family of origin that resulted in higher codependency scores include communication problems, specifically the ability of the codependents to express themselves, (Cullen & Carr, 1999; Fischer, Spann & Crawford, 1991) physical, sexual, emotional and verbal abuse, (Carson & Baker, 1994; Zuboff-Rosenzweig, 1996) parental mental health problems (Cullen & Carr, 1999) and parental codependency (Crothers & Warren, 1996). Other parental behavior that correlated with codependency included compulsive or coercive mothers and coercive fathers (Crothers & Warren, 1996) and one or both parents who were controlling (Crothers & Warren, 1996; Fischer, Spann & Crawford, 1991). Prest, Benson and Protinsky (1998) found family of origin triangulation, intimidation, intimacy, individuation and personal authority related to codependency.

Hiding self [repression and denial] and codependency. Studies by Harkness (2001) and Crothers and Warren (1996) substantiate the link between hiding self [repression and denial] and codependency. However, the terms used to assess these factors were dissociation and loss of self. Table 4 outlines the specific elements in these studies.

Whitfield (1991) stated, "Codependency includes use of a positive front to cover and control negative emotions with repression of feelings. Thus, a false self emerges" (p.

10). Uhle (1994) noted denial as one of the core issues of codependency. Harkness (2001) measured dissociation to determine if codependency was linked to certain dysfunctional behaviors. Dissociation is a reduced awareness of unpleasant experience in response to traumatic events, which can also be labeled as repression. The scores for dissociation were associated with codependency. Crothers and Warren (1996) also found codependency to be highly correlated with the total score for loss of self-scale and the three subscales of externalized self-perception, inhibition of self-expression and divided self.

Other focus/self-neglect and codependency. As noted in the section above, the characteristic of other focus/self-neglect has been investigated in several studies with various expressions used to describe the phenomenon. Five studies corroborated Hughes-Hammer, Martsolf and Zeller's (1998b) link between other focus/self-neglect and codependency and can be found in Table 4. The terms used to describe this dimension include control and boundary issues, selflessness, external locus of control and loss of self. Hughes-Hammer, Martsolf and Zeller (1998b) describe the other focus/self-neglect characteristic as a combination of control and boundary issues. Cowan and Warren (1994) noted that extreme selflessness was significantly correlated with all eight of the codependency measures used in their study providing support that self-denial is an important aspect of all dimensions of codependency. Fischer, Spann and Crawford (1991) found codependency related to an external locus of control. As noted under the hiding self [repression and denial] section, codependency was highly correlated with the measure of "loss of self" including the subscales for externalized self-perception, inhibition of self-expression and divided self (Crothers & Warren, 1996). Springer, Britt and Schlenker (1998) found codependency positively correlated with public self-consciousness and an anxious/ambivalent attachment style. A negative correlation was noted between interpersonal locus of control and secure attachment style. These researchers also found codependency to be negatively correlated with impression management, which means in order to gain approval they may attempt to control others' perceptions of them. Individuals with a secure attachment style place a great importance on the social aspects of their identity and are especially sensitive to others' opinions and reactions. They believe they have little control over their relationships. Cowan and

Warren (1994) noted female negative communication was related to codependency scales. This negative gender stereotype trait refers to a person who is unassertive, accommodating and gullible.

Carson and Baker's (1994) hypothesis postulated that codependency involves disturbed object relations and reality testing. Disturbed object relations are perceptual accuracy problems in which controlling others is a coping mechanism and relationships are unclear and anxiety provoking. Reality testing involves a difference in perceptions of reality and may include confusion about the feelings and behavior of self and others. These researchers found that insecure attachment and uncertainty of perceptions when measured together significantly predicted codependency scores and supported their hypothesis.

Farmer (1999) proposed an alternate view on the other-focus characteristic of codependency. She agreed that the codependent behavior is a manifestation of a subtle form of narcissism. This behavior includes feelings of entitlement, viewing others as extensions of themselves, with unrealistic expectations that others meet their needs and anger if they fail to do so (Farmer, 1999). However, no research was presented to substantiate this hypothesis.

Low self-worth and codependency. Codependency and self-esteem were negatively correlated in all studies that investigated the association between the two (Cullen & Carr, 1999; Fischer, Spann & Crawford, 1991; Hinkin & Kahn, 1995; Springer, Britt & Schlenker, 1998). These four studies are outlined in Table 4. Cullen and Carr (1999) assessed the association between self-esteem and codependency. Self-esteem was progressively lower as codependency increased. Springer, Britt and Schlenker (1998) established internal consistency of the Codependency Assessment Inventory (CAI) and using the Rosenberg Self-Esteem Scale to assess self-esteem, noted self-esteem was negatively correlated with codependency. Self-esteem was measured by Fischer, Spann and Crawford (1991) and was negatively correlated with codependency. Hinkin and Kahn (1995) found lower self-esteem in the wives and children of alcoholics. The validity and reliability of the Tennessee Self-Concept scale, however, was not addressed in the study.

Links between: Family of Origin Issues and Low Self-Worth and Hiding self [Repression and Denial], Family of Origin Issues and Stress, Stress and Codependency, Codependency and Medical Problems, Other Focus/Self-Neglect and Medical Problems

The links between the phenomena in this section are impossible to discuss separately as they are interrelated. The connections proposed by the Codependency-Overeating model are explained or implied in the following review of literature. Each connection is discussed in the following section with the studies described in detail in Table 4.

Family of origin issues and low self-worth. Family of origin issues and low self worth as well as family of origin issues and hiding self [repression and denial] are connected to the stressors from living in a dysfunctional family of origin. Stress in families, however, is not limited to those with an alcohol or substance abuser. Numerous studies exist that examine the effect of stress in families but are not specifically labeled as the family of origin. It was hypothesized by this researcher that family of origin issues led to codependency characteristics such as low self-worth and hiding self [repression and denial] and were due to the various stressors that were encountered. According to Potter-Efron and Potter-Efron (1989), living in a family with an alcohol abuser, or any highly stressed family, leads to fear, shame/guilt, despair, anger, denial, rigidity, impaired identity development and confusion (Potter-Efron & Potter-Efron, 1989).

Hiding self [repression and denial]. The dimension of codependency of hiding self [repression and denial] is linked to stress. Harkness (2001) noted DES (Dissociative Experiences Scale) scores were associated with codependency ratings. DES measures dissociation, which is the reduced awareness of unpleasant experience in response to traumatic events. Obviously, these traumatic events evoke stress. Harkness' study is further discussed in the hiding self [repression and denial] and codependency section.

The interrelationship between stress, codependency and medical problems was observed by Whitfield (1991), a noted codependency expert, and substantiated by six studies found in the literature. In his observation and treatment of thousands of codependents, Whitfield noticed these individuals suffered from a variety of stress related illnesses including asthma, migraines, insomnia, arrhythmias, sexual dysfunction,

arthritis and chronic fatigue syndrome. He also noted an improvement in or clearing of the condition after treatment for codependency. He postulated that the long-term stress (or distress) of codependency caused or aggravated these and possibly many other physical conditions (Whitfield, 1991). In addition, somatic complaints were correlated with codependency in several studies (Cullen & Carr, 1999; Gotham & Sher, 1996; Hinkin & Kahn, 1995). Loughead, Kelly and Voigt (1995) found somatic symptoms decreased after 16 weeks of group therapy for codependents. Harkness (2003) noted a pattern that suggested codependency reduced hospitalizations and days of medical problems for adults from parental substance abuse in the family of origin, however chronic medical problems were increased. Martsolf, Sedlak and Doheny (2000) found a strong association between codependency and decreased perceived health and ability to function in daily Activities.

Other focus/self-neglect. Other focus/self-neglect, a dimension of codependency, is also linked directly to medical problems. Hughes-Hammer, Martsolf & Zeller (1998b) asserted that the core symptom of other focus/self-neglect in codependency suggests that the codependent individual neglects the self due to a compulsion to control others, which can lead to medical problems. Family of origin issues is the root of this self-neglect which leads to actual or perceived medical problems (Martsolf, Sedlak & Doheny, 2000; Prest, Benson & Protinsky, 1998). Haynes (1993) suggested that the exposure to HIV is greater in codependent women because of their focus on being in a relationship without regard to the health risks that exist.

Table 4

Studies Confirming the Factors from the Hughes-Hammer, Martsolf and Zeller Model of Codependency (1998b)

Author(s) Year	**Purpose of Study**	**Sample**	**Design/ Analysis**	**Measures**	**Findings/Conclusions**
(Carson & Baker, 1994)	To examine the relationships between codependency and object relations, reality testing, intensity and quality of depression and childhood abuse history. Object relations-defined as perceptual accuracy problems that make relationships more unclear and anxiety-provoking in which over control of others emerges as a coping strategy. Reality testing-	N=171 adult women volunteers from a university Age m=32 (SD =9.9) SES m=54.3 (middle class) (SD =6.8) # of siblings m =2.6 (SD 1.6) Religion: Protestant =44.8% Catholic =40.7% Jewish =5.8% Other =8.7% Ethnicity/Race: Caucasian =79.8% Hispanic =8.1%	Correlational Multiple Regression	<u>Beck Codependency Assessment Scale (BCAS)</u> <u>COGP=codependent group score</u> α=.60-.89 T-RT=.82 <u>Depressed Mood Scale (CES-D)</u> α=.84-.90 Split halves r=.76-.85 SB=.86-.92 Correlated with SCL-90=.83 T-RT=.67 <u>Bell Object Relations and Reality Testing Inventory (BORRTI)</u> T-RT=.58-.90 α=.78-.90 <u>Depressive Experiences Questionnaire (DEQ)</u> Split halves r=.90 Factors correlate with other scales -.18 to .47	Relationship b/t (between) codependency & self-critical depression Intensity of R^2 change =.041(p< .01) Insecure attachment and uncertainty of perceptions when taken together significantly predicted COGP score (p=.01). No r given (*F*=4.43) Supports hypothesis that codependency involves disturbed object relations and reality testing. Subjects who experience one or more on childhood abuse scored higher codependency scale factors of Control and Family Background (p<.001). No r given (t= 12.83) Childhood abuse includes physical, sexual, or emotional abuse, alcoholic parent or combination. Authors noted significant relationships b/t self-critical or introjective depression and codependency (R^2 change=0.32). 18% of the variance in codependency accounted for by self

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
	defined as difficulty in perceptions of reality without delusions or hallucinations. May include confusion about the feelings and behavior of self and others.	Asian-American =6.4% AA = 4.0% Other =1.8% Marital Status: Married =43.4% Single =45.7% Divorced =9.8% Widowed =1.2% Data collected in 1990		<u>Alcohol, Drug Use and the Family Questionnaire</u> No data available-from an unpublished manuscript (California School of Psychology, San Diego)	criticism factor of DEQ (R^2 change =.18)
(Cowan & Warren, 1994)	To examine the relationship between gender, positive and negative gender stereotyped traits and eight codependency scales.	N=339 F = 15 M =52 (172 additional participants did not identify their gender) College students in introductory psychology classes from California State University. Caucasian =63%	Comparative MANOVA	<u>Codependency Measure</u> based on factors from 2 inventories Beck (1991) and Potter-Efron and Potter-Efron (1989) 8 Factors retained Negative Affect-Low Self-Esteem (α=.93) Perceived Lack of Family Acceptance (α=91) Responsibility for Other's Feelings (α=.76) Autonomy (α=.77) Control of Others (α=.71) Expression of Feelings (α=.83) Dysfunctional Significant Other (α=.71)	Women scored higher than men on Negative Affect/Low Self-Esteem Scale $p < .05$ and Responsibility for Others Scale $p < .01$ Significant relationships b/t socially undesirable femininity scales and the 8 codependency scales (FVA-)Female negative verbal aggression-Refers to complaining and whining behaviors. (FC-)-Female negative communion-Refers to person who is unassertive, accommodating and gullible.

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
		Latina =14% AA =8% Asian =5% Other =10% Median age =22 m=26 Married =25% Committed relationship =63% Living with SO =34% ACOA =22% In a self-help group =3%		Parental Dysfunction (α=.69) Validity-established with comparison of normative college sample eliminating ACOAs <u>Extended Personal Attributes Scale (EPAQ)</u> Measure of personality traits stereotypically associated with gender. Internal consistency (this study) .57 to .78 <u>Marlowe-Crowne Social Desirability Scale (MCSD)</u> Assessment of the overlap of the general tendency to respond in a socially desirable direction with responses to the codependency scales and to determine if significant relations between other two measures hold up when social desirability is controlled. No validity or reliability data.	(FC-) to codependency scales (r=.14-.46) Authors state: Extreme selflessness (measured by FC- scale) was significantly correlated with all eight codependency measures and contributed significantly to 7 of the 8 regression equations, providing support for the view that self-denial is an important aspect of all dimensions of codependency. F+ / FC-/ FVA- Neg. feelings/ low self-esteem -.01/.46/.44 Respect for others .24/.36/.13 Control of others .08/.17/.26 Lack of autonomy -.09/.37/.18 Lack of self-expression -.16/.38/.15 Lack of family acceptance -.16/.25/.16 Dysfunctional SO -.03/.15/.13 Dysfunctional parents -.07/.14/.21
(Crothers & Warren, 1996)	To determine whether codependency in adults is linked to	N=442 college students, med.-sized CA university,	Correlational Hierarchical multiple	<u>Spann-Fischer Codependency Scale</u> (SF CDS) α=.73-.80 T-R=.87	Higher codependency associated with higher scores on: maternal compulsive behaviors r=.16 p<.001 maternal controlling r=.14 p<.01

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
	certain family of origin experience defined in terms of dysfunctional behaviors in parents (codependency, chemical dependency, and compulsivity) and specific styles of parenting (non-nurturing, coercive, and controlling).	undergraduates M=126 F=312 Not responded to gender question=4 Age 17-56 (m= 25/ Mode=18) (no SD given) Asians=48 Blacks=37 Latinos=85 Whites=239 Other=29 Single=282 Married=117 Divorced=25 Other=12	regression analysis to determine how well adult cod. can be predicted by several parental variable considered together-using 3 parental dysfunction variables (chemical dependency, compulsivity, and codependency) entered first followed by the set of 3 parental style variables (non-nurturing, coercion, and	<u>Silencing the Self Scale (STSS)</u> α=.86-.94 T-R=.88-.93 <u>The Michigan Alcoholism Screening Test: Brief MAST</u> No info <u>Parental Compulsivity</u> No info <u>Perceived Parenting Questionnaire (PPQ)</u> SB=.48-.82 α=.69-.87	maternal coercive r= .25 p<.001 nurturing mother r= -.13 p<.01 paternal controlling r= .19 p<.001 coercive father r=.19 p<.001 nurturing father r= -.14 p<.01 Significant correlation b/t parental codependency & subject codependency. maternal codependency r=.29 p<.001 paternal codependency r=.28 p<.001 Codependency and age r= -.12 p<.01 Codependency highly correlated with: loss of self r= .71 p<.001 (total scale score) and the three subscales: externalized self perception r=.69 p<.001 inhibition of self expression, r=.55 p<.001 divided self r=.59 p<.001 Hierarchical multiple regression-parental dysfunction variables entered equation on step one (maternal and paternal codependency accounting for 13% of variance. On step two,

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
			control)		maternal coercion added a significant increment, p< .01) increasing total accounted for codependency variance to 16%.
(Cullen & Carr, 1999)	To investigate the relationship b/t codependency and family of origin experiences, intimate relationship functioning, personal adjustment, and gender.	N=289 psychology students at University College Dublin M=72 F=212 Age 17-50 (m=20.5/SD=5.14) Single=48% Currently dating=47% Engaged or married=5% Divorced or separated= <1%	Comparative One-way ANOVAs followed by Tukey-B post-hoc comparisons. Significance =p< .05	Spann-Fischer Codependency Scale (SF CDS) Present study α=.76 The Family Assessment Measure General Scale (FAM-50) Reliability .9 (type reliability not reported) General Health Questionnaire-28) Internal consistency .79-.90 for subscales .91-94 for total score Rosenberg Self-esteem Scale Reliability and validity established Compulsivity rating scales α=.44 for participants' α=.53 for partners' versions Sexual and Physical Abuse Scale	High codependency group-more difficulties with family of origin experiences p<.05, affective expression p<.05) Greater difficulty with intimate relationships p<.0001 role performance p<.0001 communication p<.0001 affective expression p<.01, involvement p<.05 control p<.001 values and norms p<.0001 Had chemically dependent partners with higher levels of compulsivity in partners p<.05. Higher incidence of parental mental health problems p<.05. High codependency group reported lower-self esteem Codependency group More psychological adjustment problems p<.0001 Psych symptoms:

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
				α=.82, .84 respectively <u>Drug Use Questionnaire</u> α=.59 <u>Paternal and maternal alcohol, drug abuse and mental health questionnaires</u> Reliability and validity not addressed	Somatic complaints p < .01 Anxiety p< .001 Social dysfunction p<.01 Depression p < .0001 Personal compulsivity p < .0001
(Fischer, Spann, & Crawford, 1991)	To demonstrate the reliability and validity of the SF CDS. The researchers predicted the perceptions of current parent-child communication, satisfaction, and parental support would be negatively related to codependency and parental control and extent of recent leisure activities with parents	N=612 5 groups-sophomore students at large SW university in variety of majors Group A N=122 M=4 F=118 Group B N=228 M=88 F=140 Group C N=218	Correlational Factor Analysis	<u>Spann-Fischer Codependency Scale (SF CDS)</u> α=.86 T-RT=.87 (The following lists the instruments and the corresponding groups that were measured by these instruments with the groups described in the subject column in this table) <u>Self-Esteem Scale</u> Groups: A, RG, CG <u>External Locus of Control (LoC) Scale</u> Groups: A, RG, CG <u>Social Desirability Scale</u> Groups: A, RG, CG	Established reliability of SF CDS A,RG,CG α=.77 B,C α=.73 , .80 Codependency related to: Group A, RG, CG Self-esteem r= -.54 External LoC r= .19 Group B Anxiety r= .47 Depression r= .42 Group C Codependency correlated with family variables (differed by gender-M vs. F) Communication r= -21 to -.27 Satisfaction r= -.30 to -.18

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
	(reflecting greater enmeshment with the family of origin would be positively related to codependency.	M=76 F=142 Known Groups Recovering Group (RG) 30 members of Al-Anon M=4 F=26 m age=20 Codependency Group(CG) 14 self identified M=4 F=26 m age=47 All groups-majority Caucasian & protestant/Christian		<u>Masculinity & Femininity Scale</u> Groups: A, RG, CG <u>Anxiety Scale</u> Group: B <u>Beck Depression Scale</u> Group: B <u>Relationship with parents on communication, satisfaction, support control, and current leisure activities</u> Group: C All scales above α=.65-.94 Except LoC=.44	Control r= .30 to .23 Support r= .24 to -.18 Current Activities r= .20 to .15
(Gotham & Sher, 1996)	To assess the reliability and validity of the CAQ	N=467 (adults) m age=23.5 M=246	Correlational Factor	Screening process to divide children of alcoholics (COAs) and non-alcoholics (non-COAs)	CAQ scores sign. related to family history Codependency correlated with family history of alcoholism (r=.18).

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
	(Codependency Assessment Questionnaire), determine to what extent codependency is related to family history of alcoholism, sex and dimensions of personality and psychopathology, determine relation between symptoms of codependency and parental alcoholism after controlling for basic dimensions of personality and psychopathology.	F=221 children of alcoholics and control group COAs 128F/110M Non-COAs 118F/111M incoming freshman at large, Midwestern university in 1987 Participating at the fourth wave of data collection in a longitudinal study of factors related to alcohol use and abuse	Analysis (exploratory & confirmatory) to study the pattern of correlations b/t the CAQ and the specific dimensions of personality and symptoms assessed by the NEO-FFI and BSI. Item-level analysis to determine if any items of the CAQ showed association with family history Multiple	<u>Short Michigan Alcoholism Screening Test (SMAST)</u> (versions of) to rate parental drinking problems <u>Family History-Research Diagnostic Criteria interview (FH-RDC)</u> (sections of) No validity or reliability data <u>NEO-Five-Factor Inventory (NEO-FFI)</u> measure personality dimensions α=.74-.85 <u>Brief Symptom Inventory (BSI)</u> self-report assessment of general psychological functioning and psychological symptoms α=.47-.76 <u>Codependency Assessment Questionnaire (CAQ)</u> measures 8 characteristics of	Much of this relationship b/t family history and codependency accounted for by neuroticism (r=.66) and symptoms of general psychopathology (r=): Extraversion -.23 Agreeableness -.32 Conscientiousness -.24 Somatization .24 Obsessive-compulsive .42 Interpersonal sensitivity .42 Depression .43 Anxiety .40 Hostility .31 Phobic anxiety .27 Paranoid ideation .40 Psychoticism .46 All significant at p<.0001 Of 34 items, six showed a significant effect (p< .05) of family history when sex and the dimensions of personality and psychopathology were controlled. Only one item showed significant effect at p< .01 (item referring to problems in the family).

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
			Regression to determine if a unique relationship existed b/t family history and CAQ after controlling for sex, NEO-FFI scales and BSI scales.	codependency-specific effects of living in "an alcoholic, chemically dependent or other long-term highly stressful family environment" p. 37 Internal consistency (α=.87 with subscales α=.43-.63)	
(Harkness, 2001)	To explore Cermak's hypothesis that dissociation mediates the relationship between substance abuse in the family of origin and offspring codependency.	N=10 adults from 5 diverse populations (one male and one female from each) Group 1-adult spouses of outpatients in substance abuse treatment (traditional codependents) Group 2-unrelated adult outpatients in	Mixed method Correlational Pilot study Multiple regression Qualitative (interviews) "bootstrapped" size of sample	<u>Spann-Fischer Codependency scale</u> Research reports found data to be reliable and valid. <u>Dissociative Experiences Scale</u> Measure of dissociation (reduced awareness of unpleasant experience in response to traumatic events) Noted to have good test-retest and split-half reliability, discriminate validity and criterion-referenced concurrent validity data. <u>The Idaho Codependency Scale</u>	Substance abuse in the family of origin was associated with DES scores. Multiple R=.47 r^2=.22 p=.00 Substance abuse in the family of origin was associated with Idaho Codependency Scale ratings. Multiple R=.56 r^2=.31 p=.00 DES scores associated with codependency ratings. Beta=.38 r^2=.14 p=.00

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
		substance abuse treatment (Cermak argues that codependents and substance abusers share compulsive psychology) Group 3-members of Codependents Anonymous (recovering codependency persons) Group 4-smoke jumpers (assumed to prefer solitary, high-risk adventure over close interpersonal relationships. Group 5-university students (goal oriented students-less likely to manifest codependent	by average factor of 13.5 to regress codependency on dissociation and substance abuse	Operationalized codependency according to substance abuse counselor's perception during observations of subject behavior. Semistructured videotaped interviews to elicit behavioral signs and symptoms of codependency by asking subjects about substance abuse in their family of origin and other interpersonal relationships. Evaluated by 27 substance abuse counselors	

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
		behavior).			
(Harkness, 2003)	To explore the putative role of codependency as a mediator or moderator of the relationship b/t substance abuse in the family of origin (SAFO) and offspring stress-related medical problems.	N=10 adults from 5 diverse populations (one male and one female from each) 1-adult spouses of outpatients in substance abuse treatment (traditional codependents) 2-unrelaed adult outpatients in substance abuse treatment (Cermak argues that codependents and substance abusers share compulsive psychology) 3-members of Codependents Anonymous (recovering codependency cases)	Correlational Multiple regression Logistic regression Bootstrapped by average factor of 13.5 Part of a counter-balanced multiple treatment experiment to test the reliability and validity of the Idaho Codependency	<u>Spann-Fischer Codependency Scale</u> Reliable and valid measure of codependent attitude confirmed by several investigators (α=.73-.80) <u>Semistructured videotaped interviews</u> To elicit behavioral signs and symptoms of codependency by asking subjects about substance abuse in their family of origin and current interpersonal relationships. Interview protocol pilot-tested with substance abuse counselors and revised <u>Substance abuse in the family of origin</u> Yes/no answers during interview <u>Idaho Codependency Scale</u> Reliable and valid measure of codependent behavior Excellent inter-rater reliability (*W*=.963 over 135 ratings in this study) Good construct, convergent, discriminant and concurrent validity data when used	Cermak's hypothesis that codependency mediates b/t SAFO and offspring codependency was rejected. (non-significant association for attitude R^2=.003, p= .53 behavior R^2= .001, p= .736) Mediator variable-intervenes b/t the independent and dependent variable and helps to explain why the relationship exists. Moderator variable-affects the strength or direction of an association b/t the independent and dependent variable.) Hypothesis 1- codependency moderates the relationship b/t SAFO and offspring medical problems by reducing hospitalizations .SAFO and codependent attitude (R^2 Change=.232, pr=.000/ two-way interaction R2 Change=.037, p = .01) SAFO and codependent behavior (R^2 Change= .158, p= .000 two-way interaction

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
		4-smoke jumpers (contrast group, because cod. has been found to moderate risk-taking behavior 5-university students (self-selection and training helped them recognize and avoid high-risk investments in exploitive relationships)	scale	by trained raters. <u>Addiction Severity Index</u> Adult offspring medical problems	R^2 Change= .053. p=.004) Evidence that codependent attitude and behavior reduced adult-offspring hospitalizations. Hypothesis 2-codependency moderates the relationship b/t SAFO and offspring medical problems by reducing days of recent medical problems. SAFO and Codependency attitude (R^2 Change= .122, p=.000 possible trend for 2-way interaction R^2 Change=.016 p= .126) SAFO and codependent behavior (R^2 Change= .092, p=.002 2-way interaction R^2 Change=.027, p= .05) Evidence that codependent attitude may have reduced and codependent behavior did reduce adult off spring days of acute medical problems. Hypothesis 3-codependency moderates the relationship b/t SAFO and offspring medical problems by reducing how much trouble offspring reported with recent medical problems. SAFO and codependent attitude (R^2 change=

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
					.407, p= .000) SAFO and codependent behavior (R^2 Change= .109, p= .001) two-way interaction not significant. Evidence unconvincing that codependency reduced how troublesome offspring found recent medical problems. Hypothesis 4-Codependency moderates the relationship b/t SAFO and offspring medical problems by increasing offspring reports of chronic medical problems. Main effects for SAFO and codependent attitude (Nagelkerke R^2 Change= 1.000 p= .000-so large that interaction term unable to explain add'l variance) SAFO and codependent behavior (Nagelkerke R^2 Change= .281, p= .000) 2-way interaction (Nagelkerke R^2 Change=.053, p= .017). Suggests that codependent behavior increased chronic medical problems reports but codependent attitude did not. Hypothesis 4-Codependency moderates the

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
					relationship b/t SAFO and offspring medical problems by increasing offspring reports of taking prescription medication on regular basis for physical problems. SAFO and codependent attitude (Nagelkerke R^2 Change= .268), p= .000, 2-way interaction not significant) SAFO and codependent behavior (Nagelkerke R^2 Change= .198, p= .000) 2-way interaction introduced no additional variance to model. Evidence did not support hypothesis.
(Hinkin & Kahn, 1995)	To determine empirically whether the personality/relation-ship characteristics postulated to define codependency are indeed characteristic of wives and adult children of alcoholics.	N=97 women Ages 22-65 m=45.2 SD=11.6 Married or in common-law relationship > 1 yr to a male veteran in treatment 1989-1990 at large West Coast VA Med. Center	Comparative MANOVA ANOVA	<u>Minnesota Multiphasic Personality Inventory-168 (MMPI-168)</u> supplemented with items which comprise Navran's Dependency Scale <u>Symptom Checklist-90 (SCL-90)</u> No further explanation given <u>Tennessee Self-Concept Scale (TSCS)</u> No further explanation given <u>Drinking Patterns and Effects Survey (DPE)</u> Self-report inventory to assess the	SA scored higher on most measures hypothesized to constitute the codependency syndrome: <u>(SCL-90)</u> Interpersonal sensitivity p=.001 Hostility p=.03 Depression p=.0001 Somatization p= .03 Obsessive-compulsive p=.0005 Anxiety p=.007 Phobic anxiety p=.04 Paranoid ideation p=.01 Psychoticism p=.0001 General symptom index p=.0003

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
		Subjects: Caucasian =46.4% AA =39.2% Hispanic =13.4% Asian/Pacific Islander-1 subject Education m =13.2 (SD= 1.85) Male Patients from 3 groups (that did not differ on age, education or race) 1-Alcohol abuse/ dependence 2-Affective/Anxiety Disorder 3-Dental patients Wives Groups 1-SA (spouse of alcoholic) 2-SP(spouse of psych pt) 3-SD (spouse of dental pt)		frequency, amount, and effects of excess drinking <u>Dyadic Adjustment Scale</u> Self-report measures current marital adjustment and satisfaction <u>Family of Origin Scale (FOS)</u> Assess self-perceived level of psychological adjustment in family of origin Reliability and validity of instruments not addressed	<u>MMPI</u> Dependency p=.007 Depression/hysteria/psychopathic deviance all p=.01 Psychasthenia p=.03 Schizophrenia p=.001 Hypomania p=.002 <u>Dyadic Adjustment Scale</u> Measures current marital adjustment and satisfaction p=.0001 SA with positive history of parental alcoholism differed from the other groups only on the Family of Origin Scale p=.05 (not on the other codependent characteristics). Codependency symptomatology by family history of alcoholism (independent of husband's diagnosis) TSCS-Lower self esteem p= .001 SCL-90 Higher interpersonal sensitivity p=.0003 Depression p=.003/Anxiety p=.01 Hostility p=.0001 Phobic anxiety p=.05

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
					Family of Origin Scale p=.0001 Excessive alcohol use p=.02 Paranoid ideation & pscyhoticism p=.01 General symptom index p=.001 Subjects who had a positive family history of alcoholism had significantly lower self-esteem scores when compared with those with negative family histories.
(Hughes-Hammer et al., 1998a)	1-To identify the prevalence of codependency in women undergoing treatment for depression 2-examine the relationship b/t codependency and depression 3-determine which of the symptoms of codependency are most highly predictive of depression scores.	N=105 Depressed women Midwestern state Subject characteristics: Age range 22-72 m=42 White =90% Black =4% Asian =1% Other =1% Married =45% Single =11% Separated =5% Divorced =34%	Descriptive – Exploratory/ Comparative/ Correlational Pearson's Product Moment Correlation Multiple regression ANOVA	<u>Beck Depression Inventory (BDI)</u> High convergent validity Split-half reliability with Spearman-Brown reliability coefficient reported as .93 T-RT .60-.83 obtained from hrs to 4 wks. <u>Codependency Assessment Tool (CODAT)</u>Validity (content and construct) process discussed α=.90 total scale individual factors α=.82-.97 T-RT r=.91 Internal consistency for Time 1= .97 Time 2= .96 Both time periods α=.82-.91	Depression levels decreased as education increased (p=.0124). Prevalence of codependency in sample: Moderate or severe codependency with severe depression =88 % Minimal or mild codependency with severe depression =20% Relationship b/t codependency and depression r =.76 (p< .0001). Correlation b/t BDI and CODAT Subscales Hiding self [repression and denial] .72 Low self-worth .71 Family of origin issues .59 Self-neglect .50 Medical problems .48

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		Widowed Previous psych hospitalization (at least one) =31% Previous problems with drugs or alcohol (personal) =23% Spouse =31% Parents =42% (105 sample size determined to be sufficient for .05 significance and power of .80)		Construct validity established by comparing the codependency dimensions with depression.	Regression of CODAT subscales on BDI Hiding self [repression and denial] p=.007 Low self-worth p=.001 Family of origin issues p=.013 Other focus/Self-neglect p=.187 Medical problems p=.000 Depression and codependency -strongly related. Low self-worth and hiding self [repression and denial] correlated most strongly with depression.
(Loughead, Kelly, & Voigt, 1995)	To examine the efficacy of group counseling treatment for codependence and discuss the implications for counseling practice. Secondary purpose-	N=24 Self-identified as codependent Age 18-65 m=43 F=69% M= 31%	Comparative ANCOVA with pre-test scores to examine differential outcome effects between	Spann-Fischer Codependence Scale 6-pt Likert-type scale items. T-RT .87 α=.86 substantial validity demonstrated in convergent and discriminatory studies α=.73-.80 and T-R=.87 (Crothers & Warren, 1996)	Treatment groups differed at conclusion of counseling in only 2 personality characteristic scales (Histrionic and Delusional Disorder) but did not differ substantially on the majority of scales related to codependence, self-concept and personality characteristics, therefore data from both groups combined for subsequent analyses. Results of pre- and post-test scores after 16-wks

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	obtain diagnostic indicators of self-identified codependent individuals based on commonly used assessment instruments.	All Caucasian Well-educated 87% with college degree Randomly assigned to 2 treatment groups Screened out if suicidal, clinically depressed, psychotic or actively using drugs or alcohol.	the 2 groups 2-tailed paired t-tests to note changes in manifestations of codependence, self-concept and personality characteristics following 16 wks of group counseling	Tennessee Self-Concept Scale 100 self-descriptive items 5-pt Likert-type scale T-RT over 2 wks=.90-.92 Numerous studies demonstrate validity Millon Clinical Multiaxial Inventory-II (MCMI-II) Personality test 175 true-false, self-report items. Well-documented reliability and validity	of group counseling indicate there was amelioration of codependent symptoms after treatment for codependency. Paired t-tests Spann-Fischer Codependence Scale p=.000 (MCMI-II) Personality Scales: Schizoid p=.003 Avoidant p=.000 Dependent p=.004 Histrionic p=.013 Passive-Aggressive p=.017 Self-Defeating p=.001 Severe Personality Pathology Scales: Schizotypal p=.001 Borderline p=.003 Clinical Syndrome Scales: Anxiety p=.015 Somatoform p=.002 Dysthymic Disorder p=.004 Thought Disorder p=.021
(Martsolf, Sedlak, &	To determine: 1-if findings of a	N=307	Descriptive/ Correlational	Codependency Assessment Tool (CODAT)	Symptoms of codependency from Hughes-Hammer, Martsolf and Zeller model best predict

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Doheny, 2000)	positive relationship b/t codependency and depression would replicate 2-the prevalence of codependency in older women 3-the relationship b/t codependency and other health-related variables including perceived health, perceived quality of life, functional ability, and illness prevention behaviors in elderly women.	Women seeking health treatment in a flu injection clinic Age 65-91 (m=73.7/SD=6.05) Caucasian= 97% AA =2 subjects Asian =1 subject Native American =1 subject Income data from 205 women < $20,000 =56% $20,000-35,000 =30% >35,000=14% Less than high school =18% High school graduate =45% Some college =27% College graduates =6%		Tool development along with strong reliability and validity discussed. <u>Beck Depression Inventory (BDI-II)</u> Widely used with established internal reliability, split-half reliability, T-RT reliability and construct validity. <u>Perceived Health</u> Single item to rate current health status on 5-pt Likert-type scale (1=excellent to 5=poor) used successfully in studies of older adults. <u>Quality of Life Visual Analogue Scale (VAS)</u> Mark placed on 10-cm line to indicate rating of current quality of life (from best to worst). VAS-reported moderate to strong T-RT reliabilities. <u>Functional Ability</u> (Measurement of Patient Outcomes in Arthritis-adapted version) 22-items on a 4-pt Likert-type scale to measure functional ability.	depression scores Correlation b/t BDI and CODAT subscales Low self-worth r =.45 Medical problems r =.44 Hiding self [repression and denial] r =.31 Family of origin issues r =.19 Other focus/self-neglect r =.11 Regression of CODAT subscales on BDI predicting depression from the codependency subscales Significant positive effect on depression: Low self-worth .345 to 5.04 Medical problems .272 to 4.34 Hiding self [repression and denial] .129 to2.09 No significant effect: Family of origin issues .061 to.995 Other focus/self-neglect -0.89 to -1.44 CODAT Scores- codependency category: Minimal=77% Mild=22% Moderate=1% Severe=0

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		Graduate degrees =4% Live alone=38% With spouse =49% With other family =12% Not reporting =1% Married =49% Widowed =41% Separate/divorced =6% Single =4%		α=.86 T-RT=.95 <u>Illness Prevention Screening Behaviors Checklist</u> Yes/No, answer to 18 recommended screenings for age 50 and older.	Codependency associated with decreased in perceived health and ability to function in daily activities. Illness prevention and perceived quality of life-not significantly correlated with codependency. Correlation b/t codependency and: Perceived health= -.222 Quality of life= -.046 Functional ability= .206 Illness prevention= -.144 Regression of BDI and CODAT scores on other health variables. Depression was best predictor of other health variables (p= .001 to .004) with exception of illness prevention(.139) Codependency had no significant effect on any of the health variables of interest (p= .060--.409).
(Meyer 1997)	To investigate the similarities between excessive codependency and eating disorders; explore the association of each to stressful events.	N=95 undergraduate women at large Midwestern university Age 18-35 (m= 20.3/no SD given) 71 students were	Comparative Chi Square ANOVA	<u>Codependency Assessment (CA)</u> T-RT=.53 to .86 over 4 wk interval Adequate internal consistency and concurrent validity data established <u>The Eating Disorder Inventory-2 (EDI-2)</u> Validity and reliability well established <u>Differentiation of Self Scale (DS)</u>	Codependents were more likely to have experienced a chronic stressful event (including association with an alcoholic family member) than participants not assessed as codependent (p< .01). Result coincides with view of codependency as a coping mechanism to escape the negative feelings of growing up in a constrained, volatile family environment.

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
		freshmen or sophomores. Caucasian =80%,11% Asian-American =11% AA =6% Received course credit for participation.		α=.72-.76 <u>Demographic Questionnaire</u> included association with chemically dependent persons and experiences with chronic stressors (open-ended to describe individual situations).	Codependents exhibited more eating disorder symptoms (not overeating) than non-codependents.
(Prest, Benson, & Protinsky, 1998)	To investigate codependency within the framework of Bowen's Family Systems Theory, compare alcoholics and their spouses with respect to dysfunction in FoO, current families or their codependency levels.	120 participants including a clinical sample of 30 married couples and a matched, nonclinical comparison group Clinical group recruited from 4 aftercare programs associate with two substance abuse treatment centers. All Caucasian	Comparative/ Correlational MANOVA used to test for overall difference across the nine scales (5 FoO scales, three current relationship scales and the cod scale. Examined possible interactions and main	<u>Friel Co-Dependency Assessment Inventory</u> Previous estimates: α=.83 - .85 Current sample: α=.79 <u>Personal Authority in the Family System Questionnaire (PAFS-Q, version A)</u> self report information on current relationships with family members in current nuclear family and family of origin Previous estimates for subscales: α=.74 - .96 Current sample: α=.68-.90 Construct validity discussed	Clinical group scored higher in: Codependency (p< .0001) Family of origin: Triangulation Intimacy Individuation Personal authority (all above p< .0001) Intimidation (p<.01) Current family: Triangulation Intimacy Individuation (all above p< .0001)

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
			effects among the 3 sample groups. Husbands vs. wives, clinical vs. comparison group, alcoholic vs. spouse. Correlational analysis (type of test not specified).		Correlation b/t study scales and codependency in clinical group and comparison group. Family of origin: Clinical grp Comparison grp Triangulation .25 -.30 Intimacy -.28 -.03 Individuation -.27 -.16 Personal authority -.22 .04 Intimidation .25 -.14 Current family: Clinical grp Comparison grp Triangulation .15 .16 Intimacy -.25 .45 Individuation -.31 .00 (contradictions to codependency theory- comparison group triangulation in FoO related to lower codependency and intimacy in current relationship related to higher codependency).
(Springer, Britt, & Schlenker, 1998)	To examine associations between codependency, relationship quality and personality	N=217 Undergraduate students M=52 F=165	Correlational Factor Analysis Multiple	<u>CAI Codependency Assessment Inventory</u> Authors noted that only research found relevant to validity of scale found codependency associated with lower self-esteem and an externally oriented locus	Negative correlation b/t cod. and self-esteem (r= -.64) Pos correlation b/t codependency and anxious/ambivalent attachment style (r=.22) (obsessive regard for partners with intense desire

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	characteristics.	Taking introductory psychology course All "dating someone in particular"	regression	of control This study established: α=.87 <u>Self Esteem Scale (Rosenberg,1965)</u> Researchers state-shown to have acceptable reliability and validity <u>Attachment Styles</u> No info on validity or reliability <u>The Relationship Quality Questionnaire (RQQ)</u> High internal consistency Subscales correlations support convergent validity validity or reliability <u>Inclusion of Other in Self Scale (IOS)</u> Predictive validity noted <u>Self-Consciousness Scale (SCS)</u> Notes extensive research support reliability and validity of subscales	for merger and reciprocation) Negative correlation b/t codependency and secure attachment style (r= -.42) Negative correlation b/t cod and interpersonal locus of control (r= -.31) (Codependents believe they little control over their interpersonal relationships) Positive correlation b/t codependency and public self-consciousness (r= .27) (place greater importance on the social than the personal aspects of their identity, are esp. sensitive to others' opinions and reactions). Codependency correlated with private self-consciousness (r=.18) (tend to focus attention on the personal facets of self and are more aware of emotional and internal states than of social processes). Positive correlation b/t codependency and social anxiety (r=.29) (tendency to become nervous and tense in social situations).

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
				<u>Impression Management Scale (IMS)</u> Notes several studies established reliability and validity <u>Interpersonal Locus of Control (ILC)</u> No information on validity or reliability	Negative correlation b/t codependency and impression management (r= -.20) (to gain approval, may attempt to control others' perceptions of them through manipulative impression management-associated with public pretense). (all above sign. at p< .01)
(Zuboff-Rosenzweig, 1996)	To examine the similarities in the backgrounds of Al-Anon (Al) and control (C) groups.	N=93 employees in a mental health agency or children attending Jewish day school	Comparative	Questionnaire 33 statements-Likert scale (Never-Rarely, Sometimes, Often, Always) Subscales described in findings. No discussion of validity or reliability	Drinking in Family of Origin (FoO) Al > C p< .001 Degree of codependency Al>C p<.001 Degree of dysfunction in mood of family of origin concerning family member's ability to express themselves. Al> C p<.001 Sexual Abuse in FoO Al>C p<.01 Physical abuse in FoO Al> C p<.001 Verbal Abuse Al>C p<.001 (Incidence reported in % in (Al) vs. (C) group. F value given, no r reported) Correlation of Sub-Groups

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
					Al (Al-Anon) Codependency correlated with mood of FoO (r=55 p< .01) Sexual abuse correlated with physical (r=.46) and verbal abuse (r=.36 p<.05) Physical abuse correlated with drinking (r=.30) C (Control) Codependency correlated with mood of FoO and physical and verbal abuse (no r given) Correlation b/t mood of family of origin and physical abuse (r=.61) Correlation b/t drinking and physical abuse (r=.48) Correlation b/t verbal abuse and drinking (r=.38) Both groups Physical abuse correlated with mood of family Sexual abuse correlated with verbal abuse (no r given)

Codependency and Psychological Problems/Negative Moods (Emotions)

The studies that illustrate the association between codependency and psychological problems/negative moods (emotions) are presented in Table 5. Individuals with codependency issues have been found to have psychological problems that exhibit negative mood or emotional states. Recurrent negative moods/emotions, also known as dysphoric moods, were noted to include anxiety, depression, compulsivity and anger/frustration**.**

Codependency and Anxiety

Codependency was positively correlated with anxiety in four studies (Cullen & Carr, 1999; Fischer, Spann & Crawford, 1991; Gotham & Sher, 1996; Hinkin & Kahn, 1995). Each study is outlined in Table 5. Fischer, Spann and Crawford (1991) in demonstrating reliability and validity of the Spann-Fischer Codependency Scale noted codependency to be significantly related to anxiety. Hinkin and Kahn (1995) found spouses of alcoholics scored higher on anxiety with the Symptom Checklist-90; however, validity and reliability data were not presented for the instrument. Gotham and Sher (1996) noted significance in the association between codependency and anxiety. Cullen and Carr (1999) found anxiety to be equal in the low and medium codependency group but significantly higher in the high codependency group.

Codependency and Depression

Six studies found a positive correlation between codependency and depression with their details noted in Table 5. Hughes-Hammer, Martsolf and Zeller (1998a) compared codependency with depression and noted several similarities. The feeling of worthlessness and inappropriate guilt in depression corresponded with the low self-worth of codependency. Denial and repression (hiding self [repression and denial]) was prominent in depression as well as codependency. Both codependency and depression included physiological symptoms such as weight change, fatigue and sleep pattern disturbances (Hughes-Hammer et al., 1998a). Hughes-Hammer, Martsolf and Zeller (1998a) found all dimensions of codependency to have a strong positive correlation with depression, with low self-worth and hiding self [repression and denial] correlated most strongly with depression. Notably, 88% of individuals with moderate or severe codependency and 20% with minimal or mild codependency suffered from severe

depression. The details for the additional studies that found codependency correlated with depression are included in Table 5. (Carson & Baker, 1994; Cullen & Carr, 1999; Fischer, Spann & Crawford, 1991; Gotham & Sher, 1996; Hinkin & Kahn, 1995).

Codependency and Compulsivity

Three studies noted the correlation between codependency and compulsivity and are included in Table 5. Codependency correlated with compulsivity in three studies. Gotham and Sher (1996) and Hinkin and Kahn (1995) noted obsessive-compulsive behavior in codependents while Cullen and Carr (1999) described the problem as personal compulsivity.

Codependency and Anger

Two studies, detailed in Table 5, noted the relationship between codependency and anger. Gotham and Sher (1996) noted the relationship between family history and codependency was accounted for by symptoms of general psychopathology, one of which was described as hostility. Hinkin and Kahn (1995) also noted spouses of alcoholics scored higher on most measures of codependency, including hostility.

Table 5

Codependency and Psychological Problems (Anxiety, Depression, Compulsivity and Anger)

Author(s) Year	**Purpose of Study**	**Sample**	**Design/ Analysis**	**Measures**	**Findings/Conclusions**
(Carson & Baker, 1994)	To examine the relationships between codependency and object relations, reality testing, intensity and quality of depression and childhood abuse history. Object relations-defined as perceptual accuracy problems that make relationships more unclear and anxiety-provoking in which over control of others emerges a s a coping strategy. Reality testing-defined as difficulty in perceptions of reality	N=171 adult women volunteers from a university Age m=32 (SD =9.9) SES m=54.3 (middle class) (SD =6.8) # of siblings m =2.6 (SD 1.6) Religion: Protestant =44.8% Catholic =40.7% Jewish =5.8% Other =8.7% Ethnicity/Race: Caucasian =79.8%	Correlational Multiple Regression	<u>Beck Codependency Assessment Scale (BCAS)</u> <u>COGP=codependent group score</u> α=.60-.89 T-RT=.82 <u>Depressed Mood Scale (CES-D)</u> α=.84-.90 Split halves r=.76-.85 SB=.86-.92 Correlated with SCL-90=.83 T-RT=.67 <u>Bell Object Relations and Reality Testing Inventory (BORRTI)</u> T-RT=.58-.90 α=.78-.90 <u>Depressive Experiences Questionnaire (DEQ)</u> Split halves r=.90 Factors correlate with other scales -	Relationship b/t (between) codependency & self-critical depression Intensity of R^2 change =.041($p< .01$) Insecure attachment and uncertainty of perceptions when taken together significantly predicted COGP score (p=.01). No r given (F=4.43) Supports hypothesis that codependency involves disturbed object relations and reality testing. Subjects who experience one or more on childhood abuse scored higher codependency scale factors of Control and Family Background ($p<.001$). No r given (t= 12.83) Childhood abuse includes physical, sexual, or emotional abuse, alcoholic parent or combination. Authors noted significant relationships b/t self-critical or introjective depression and

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
	without delusions or hallucinations. May include confusion about the feelings and behavior of self and others.	Hispanic =8.1% Asian-American =6.4% AA = 4.0% Other =1.8% Marital Status: Married =43.4% Single =45.7% Divorced =9.8% Widowed =1.2% Data collected in 1990		.18 to .47 <u>Alcohol, Drug Use and the Family Questionnaire</u> No data available-from an unpublished manuscript (California School of Psychology, San Diego)	codependency (R^2 change=0.32). 18% of the variance in codependency accounted for by self criticism factor of DEQ (R^2 change =.18).
(Cullen & Carr, 1999)	To investigate the relationship b/t codependency and family of origin experiences, intimate relationship functioning, personal adjustment, and gender.	N=289 psychology students at University College Dublin M=72 F=212 Age 17-50 (m=20.5/SD=5.14) Single=48% Currently dating=47% Engaged or married=5% Divorced or separated=	Comparative One-way ANOVAs followed by Tukey-B post-hoc comparisons. Significance =p< .05	<u>Spann-Fischer Codependency Scale (SF CDS)</u> Present study α=.76 <u>The Family Assessment Measure General Scale (FAM-50)</u> Reliability .9 (type reliability not reported) <u>General Health Questionnaire-28)</u> Internal consistency .79-.90 for subscales .91-94 for total score <u>Rosenberg Self-esteem Scale</u>	High codependency group-more difficulties with family of origin experiences p<.05, affective expression p<.05) Greater difficulty with intimate relationships p<.0001 role performance p<.0001 communication p<.0001 affective expression p<.01, involvement p<.05 control p<.001 values and norms p<.0001 Had chemically dependent partners with higher levels of compulsivity in partners p<.05.

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
		<1%		Reliability and validity established <u>Compulsivity rating scales</u> α=.44 for participants' α=.53 for partners' versions <u>Sexual and Physical Abuse Scale</u> α=.82, .84 respectively <u>Drug Use Questionnaire</u> α=.59 <u>Paternal and maternal alcohol, drug abuse and mental health questionnaires</u> Reliability and validity not addressed	Higher incidence of parental mental health problems p<.05. High codependency group reported lower-self esteem. Codependency group More psychological adjustment problems p<.0001 Psych symptoms: Somatic complaints p < .01 Anxiety p< .001 Social dysfunction p<.01 Depression p < .0001 Personal compulsivity p < .0001
(Fischer et al., 1991)	To demonstrate the reliability and validity of the SF CDS. The researchers predicted the perceptions of current parent-child communication, satisfaction, and	N=612 5 groups-sophomore students at large SW university in variety of majors Group A N=122 M=4	Correlational Factor Analysis	<u>Spann-Fischer Codependency Scale (SF CDS)</u> α=.86 T-RT=.87 (The following lists the instruments and the corresponding groups that were measured by these instruments with the groups described in the	Established reliability of SF CDS A,RG,CG α=.77 B,C α=.73 , .80 Codependency related to: Group A, RG, CG Self-esteem r= -.54 External LoC r= .19

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
	parental support would be negatively related to codependency and parental control and extent of recent leisure activities with parents (reflecting greater enmeshment with the family of origin would be positively related to codependency.	F=118 Group B N=228 M=88 F=140 Group C N=218 M=76 F=142 Known Groups Recovering Group (RG) 30 members of Al-Anon M=4 F=26 m age=20 Codependency Group(CG) 14 self-identified M=4 F=26 m age=47		subject column in this table) <u>Self-Esteem Scale</u> Groups: A, RG, CG <u>External Locus of Control (LoC) Scale</u> Groups: A, RG, CG <u>Social Desirability Scale</u> Groups: A, RG, CG <u>Masculinity & Femininity Scale</u> Groups: A, RG, CG <u>Anxiety Scale</u> Group: B <u>Beck Depression Scale</u> Group: B <u>Relationship with parents on communication, satisfaction, support control, and current leisure activities</u> Group: C All scales above	Group B Anxiety r= .47 Depression r= .42 Group C Codependency correlated with family variables (differed by gender-M vs. F) Communication r= -21 to -.27 Satisfaction r= -.30 to -.18 Control r= .30 to .23 Support r= .24 to -.18 Current activities r= . 20 to .15

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
		All groups- majority Caucasian & protestant/Christian		α=.65-.94 Except LoC=.44	
(Gotham & Sher, 1996)	To assess the reliability and validity of the CAQ (Codependency Assessment Questionnaire), determine to what extent codependency is related to family history of alcoholism, sex and dimensions of personality and psychopathology, determine relation between symptoms of codependency and parental alcoholism after controlling for basic dimensions of personality and psychopathology.	N=467 (adults) m age=23.5 M=246 F=221 children of alcoholics and control group COAs 128F/110M Non-COAs 118F/111M incoming freshman at large, Midwestern university in 1987 Participating at the fourth wave of data collection in a longitudinal study of factors related to alcohol use and abuse.	Correlational Factor Analysis (exploratory & confirmatory) to study the pattern of correlations b/t the CAQ and the specific dimensions of personality and symptoms assessed by the NEO-FFI and BSI Item-level analysis to determine if any items of the CAQ showed association with family history.	Screening process to divide children of alcoholics (COAs) and non-alcoholics (non-COAs) Short Michigan Alcoholism Screening Test (SMAST) (versions of) to rate parental drinking problems Family History-Research Diagnostic Criteria interview (FH-RDC) (sections of) No validity or reliability data NEO-Five-Factor Inventory (NEO-FFI) measure personality dimensions α=.74-.85	CAQ scores sign. related to family history Codependency correlated with family history of alcoholism (r=.18) Much of this relationship b/t family history and codependency accounted for by neuroticism (r=.66) and symptoms of general psychopathology (r=): Extraversion -.23 Agreeableness -.32 Conscientiousness -.24 Somatization .24 Obsessive-compulsive .42 Interpersonal sensitivity .42 Depression .43 Anxiety .40 Hostility .31 Phobic anxiety .27 Paranoid ideation .40 Psychoticism .46 All significant at p<.0001

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
			Multiple Regression to determine if a unique relationship existed b/t family history and CAQ after controlling for sex, NEO-FFI scales and BSI scales	Brief Symptom Inventory (BSI) self-report assessment of general psychological functioning and psychological symptoms α=.47-.76 Codependency Assessment Questionnaire (CAQ) measures 8 characteristics of codependency-specific effects of living in "an alcoholic, chemically dependent or other long-term highly stressful family environment" p. 37 Internal consistency (α=.87 with subscales α=.43-.63)	Of 34 items, six showed a significant effect (p< .05) of family history when sex and the dimensions of personality and psychopathology were controlled. Only one item showed significant effect at p< .01 (item referring to problems in the family).
(Hinkin & Kahn, 1995)	To determine empirically whether the personality/relationship characteristics postulated to define codependency are indeed characteristic of wives and adult children of alcoholics.	N=97 women Ages 22-65 m=45.2 SD=11.6 Married or in common-law relationship > 1 yr to a male veteran in treatment	Comparative MANOVA ANOVA	Minnesota Multiphasic Personality Inventory-168 (MMPI-168) supplemented with items which comprise Navran's Dependency Scale Symptom Checklist-90 (SCL-90) No further explanation given	SA scored higher on most measures hypothesized to constitute the codependency syndrome: (SCL-90) Interpersonal sensitivity p=.001 Hostility p=.03 Depression p=.0001 Somatization p= .03 Obsessive-compulsive p=.0005

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
		1989-1990 at large West Coast VA Med. Center Subjects: Caucasian =46.4% AA =39.2% Hispanic =13.4% Asian/Pacific Islander-1 subject Education m =13.2 (SD= 1.85) Male Patients from 3 groups (that did not differ on age, education or race) 1-Alcohol abuse/ dependence 2-Affective/Anxiety Disorder 3-Dental patients Wives Groups 1-SA (spouse of alcoholic) 2-SP(spouse of psych pt) 3-SD (spouse of dental pt)		<u>Tennessee Self-Concept Scale (TSCS)</u> No further explanation given <u>Drinking Patterns and Effects Survey (DPE)</u> Self-report inventory to assess the frequency, amount, and effects of excess drinking <u>Dyadic Adjustment Scale</u> Self-report measures current marital adjustment and satisfaction <u>Family of Origin Scale (FOS)</u> Assess self-perceived level of psychological adjustment in family of origin Reliability and validity of instruments not addressed	Anxiety p=.007 Phobic anxiety p=.04 Paranoid ideation p=.01 Psychoticism p=.0001 General symptom index p=.0003 <u>MMPI</u> Dependency p=.007 Depression/hysteria/psychopathic deviance all p=.01 Psychasthenia p=.03 Schizophrenia p=.001 Hypomania p=.002 <u>Dyadic Adjustment Scale</u> Measures current marital adjustment and satisfaction p=.0001 SA with positive history of parental alcoholism differed from the other groups only on the Family of Origin Scale p=.05 (not on the other codependent characteristics). Codependency symptomatology by family history of alcoholism (independent of husband's diagnosis) TSCS-Lower self-esteem p= .001

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
					SCL-90 Higher interpersonal sensitivity p=.0003 Depression p=.003/Anxiety p=.01 Hostility p=.0001 Phobic anxiety p=.05 Family of Origin Scale p=.0001 Excessive alcohol use p=.02 Paranoid ideation & pscyhoticism p=.01 General symptom index p=.001 Subjects who had a positive family history of alcoholism had significantly lower self-esteem scores when compared with those with negative family histories.
(Hughes-Hammer et al., 1998a)	1-To identify the prevalence of codependency in women undergoing treatment for depression 2-examine the relationship b/t codependency and depression 3-determine which of the symptoms of codependency are most	N=105 depressed women midwestern state Subject characteristics: Age range 22-72 m=42 White =90% Black =4% Asian =1% Other =1%	Descriptive – Exploratory/ Comparative/ Correlational Pearson's Product Moment Correlation Multiple regression	Beck Depression Inventory (BDI) High convergent validity Split-half reliability with Spearman-Brown reliability coefficient reported as .93 T-RT .60-.83 obtained from hrs to 4 wks. Codependency Assessment Tool (CODAT)Validity (content and construct) process discussed α=.90 total scale	Depression levels decreased as education increased (p=.0124) Prevalence of codependency in sample: Moderate or severe codependency with severe depression =88 % Minimal or mild codependency with severe depression =20% Relationship b/t codependency and depression r =.76 (p< .0001) Correlation b/t BDI and CODAT Subscales

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
	highly predictive of depression scores.	Married =45% Single =11% Separated =5% Divorced =34% Widowed Previous psych hospitalization (at least one) =31% Previous problems with drugs or alcohol (personal) =23% Spouse =31% Parents =42% (105 sample size determined to be sufficient for .05 significance and power of .80)	ANOVA	individual factors α=.82-.97 T-RT r=.91 Internal consistency for Time 1= .97 Time 2= .96 Both time periods α=.82-.91 Construct validity established by comparing the codependency dimensions with depression.	Hiding self [repression and denial] .72 Low self-worth .71 Family of origin issues .59 Self-neglect .50 Medical problems .48 Regression of CODAT subscales on BDI Hiding self [repression and denial] p=.007 Low self-worth p=.001 Family of origin issues p=.013 Other focus/Self-neglect p=.187 Medical problems p=.000 Depression and codependency -strongly related. Low self-worth and hiding self [repression and denial] correlated most strongly with depression.
(Springer et al., 1998)	To examine associations between codependency, relationship quality and personality characteristics.	N=217 undergraduate students M=52 F=165 Taking introductory	Correlational Factor Analysis Multiple regression	<u>CAI Codependency Assessment Inventory</u> Authors noted that only research found relevant to validity of scale found codependency associated with lower self-esteem and an externally	Negative correlation b/t cod. and self-esteem (r= -.64) Pos correlation b/t codependency and anxious/ambivalent attachment style (r=.22) (obsessive regard for partners with intense

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
		psychology course All "dating someone in particular"		oriented locus of control This study established: α=.87 <u>Self Esteem Scale (Rosenberg,1965)</u> Researchers state-shown to have acceptable reliability and validity <u>Attachment Styles</u> No info on validity or reliability <u>The Relationship Quality Questionnaire (RQQ)</u> High internal consistency Subscales correlations support convergent validity validity or reliability <u>Inclusion of Other in Self Scale (IOS)</u> Predictive validity noted <u>Self-Consciousness Scale (SCS)</u> Notes extensive research support reliability and validity of subscales	desire for merger and reciprocation) Negative correlation b/t codependency and secure attachment style (r= -.42) Negative correlation b/t cod and interpersonal locus of control (r= -.31) (Codependents believe they little control over their interpersonal relationships) Positive correlation b/t codependency and public self-consciousness (r= .27) (place greater importance on the social than the personal aspects of their identity, are esp. sensitive to others' opinions and reactions) Codependency correlated with private self-consciousness (r=.18) (tend to focus attention on the personal facets of self and are more aware of emotional and internal states than of social processes) Positive correlation b/t codependency and social anxiety (r=.29) (tendency to become nervous and tense in social situations)

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings/Conclusions
				<u>Impression Management Scale (IMS)</u> Notes several studies established reliability and validity <u>Interpersonal Locus of Control (ILC)</u> No information on validity or reliability	Negative correlation b/t codependency and impression management (r= -.20) (to gain approval, may attempt to control others' perceptions of them through manipulative impression management-associated with public pretense) (all above sign. at p< .01)

Negative Moods/Emotions and Overeating

The connection of negative moods/emotions to codependency was described in the previous sections of this literature review. The following section chronologically outlines the connections found between negative moods/emotions and overeating with the studies detailed in Table 6. Negative emotions noted in individuals who overeat include descriptions for the moods that describe anxiety, depression and anger, along with social dysfunction. The propensity to eat in response to negative emotions is related to gender, type of emotion, current weight, food choice, and deprivation status (Macht, Roth, & Ellgring, 2002).

Schacter, Goldman and Gordon (1968) examined the effects of fear and food deprivation on the amount eaten by obese and normal weight subjects. The normal weight subjects ate less when their stomachs were full, with high-fear conditions decreasing the amount eaten. The obese subjects, in contrast, ate more when their stomachs were full; high fear had no effect on the amount eaten. The fearful obese subjects ate slightly more than the calm obese subjects; however this did not reach statistical significance. There is a scarcity of research investigating the effect of fear on eating behavior. This could be due to the difficulty in measurement of the emotion and the challenge of conducting a safe, ethical study that produces no harm to human subjects.

Slochower, Kaplan and Mann (1981) found a correlation between anxiety, loss of control and eating. These researchers assessed the effects of life stress on mood and eating in an obese and normal weight group and found the obese students' eating was related to the degree of anxiety experienced. These students ate significantly more during examinations (high stress condition) as compared with three weeks after their last examination with their eating related to the degree of depression, worthlessness, unhappiness and anger. The normal weight students showed a similar but non-significant increase in eating.

In an experimental manipulation study, Ruderman (1983) examined the relationship between the level of anxiety and food consumption. High anxiety, low anxiety and relaxation states were induced with the effect of the level of anxiety measured. Anxiety did not significantly influence the normal weight group in the amount eaten but this group tended to eat less when relaxed than when mildly or highly anxious.

The low anxiety obese group ate more than the obese high anxiety group and the normal weight relaxation group. The researchers from this study suggested that anxiety alone is not a good predictor of eating patterns, but the level of anxiety should be considered.

Ganley (1988) noted a new factor labeled Emotional Eating (eating during periods of dysphoric affect) which had the highest loadings of any item and suggested that this factor may represent a new dimension that had received little attention up to this point in time. The Emotional Eating factor included items regarding eating while anxious, blue, nervous, lonely and without association with hunger.

VanStrien and Bergers (1988) studied the relationship between overeating and the adherence to sex-role stereotypes along with the effects of anxiety and negative self-concept on this relationship. The subsequent analysis revealed that emotional eating was positively correlated to anxiety and negative self-concept and negatively correlated to positive self-concept, however these were not strong correlations (VanStrien & Bergers, 1988). The correlation with self-concept in this study supports Slochower, Kaplan and Mann's (1981) findings of worthlessness related to eating behavior. Emotional factors contributed to compulsive eating behaviors in compulsive eaters, compulsive drinkers and their spouses (Prest & Storm, 1988). Emotional factors cited as contributing to compulsive eating in order from highest to lowest occurrence included celebration, stress, anxiety, loneliness, boredom, anger, social pressures, undefined urges and sadness.

Hill, Weaver and Blundell (1991) found food craving highly correlated with emotional eating in a 2-phase study designed to explore dietary restraint and food craving. Relationships were found between craving and emotional eating in Phase 1. Women chosen from Phase 1, based on their food craving ratings, participated in Phase 2 to examine cravings, food intake, mood and hunger. Cravers had higher ratings of boredom particularly during the first half of the day. The cravers also tended to have higher ratings of anxiety that were only statistically significant late in the evening. A negative emotional tone was the term used to describe the feelings of being angry, lonely, bored, upset and irritable that was present in all but one of the subjects who experienced cravings. The women who always fulfilled their cravings experienced a positive mood shift after eating.

Arnow, Kenardy and Agras (1992) noted negative moods as an antecedent to binge eating in all subjects, which included obese females. The negative moods included misery, fearfulness, jitteriness, anger with self and others, irritability, sadness and tiredness. Anger/frustration, anxiety, and sadness/depression accounted for 95% of the moods reported prior to binge eating with approximate proportions of 2:2:1 (Arnow, Kenardy, & Agras, 1992).

In a 2-part study to develop the Emotional Eating Scale (EES), higher levels of binge eating was associated with the desire to eat when experiencing negative affect (Arnow, Kenardy & Agras, 1995). The women participating in a treatment study that targeted binge eating (met criteria for bulimia without the purging behavior) and weight loss. In Part One of the study, principal components analysis revealed the subsequent dimensions: Factor I accounted for 19.7% of the variance and included the feelings of "discouraged, guilty, irritated, angry, furious, inadequate, helpless, resentful, frustrated, jealous and rebellious" and contained the original anger and frustration items. Factor II accounted for 12.5% of the variance and included the feelings of "jittery, on edge, shaky, nervous, excited, uneasy, worried, upset and confused" and reflected the original anxiety items. Factor III accounted for 10.4% of the variance and included the feelings of "lonely, bored, sad, blue, and worn out" and involved the depression items (Arnow, Kenardy, & Agras, 1995). The authors noted that 47 is a relatively small sample size for principal components analysis, these results were helpful in determining how the various descriptions of anger/frustration, anxiety and depression are answered most similarly by subjects and were used to describe negative moods/emotions in the Codependency-Overeating Model (Leech, Barrett, & Morgan, 2005).

Stickney, Miltenberger and Wolff (1999) studied the antecedents and consequences of binge eating behavior. The most frequent responses regarding antecedents to binge eating were feeling depressed, upset, empty, hopeless, stressed, overwhelmed, angry, bored, worry about responsibilities, focus on food, feeling down/sad, worry about problems and frustration. The most frequent responses to the monitoring scale that rated the functions of binge-eating behavior were relief from boredom, hunger, worry and loneliness.

Macht (1999) examined the effects of anger, fear, sadness and joy on the four factors extracted from the study's questionnaire development. The four factors included hunger, impulsive eating, sensory eating and hedonic eating. The results indicated that hunger was higher during anger and joy than during fear and sadness. Higher tendencies of impulsive and sensory eating were reported for anger compared to the other emotions. Impulsive eating was higher for fear and sadness than joy; sensory eating was higher for sadness than joy. Interestingly, women reported more impulsive and sensory eating than men did during anger and sadness.

Table 6

Negative Moods/Emotions and Overeating

Author(s) Year	**Purpose of Study**	**Sample**	**Design/ Analysis**	**Measures**	**Findings**
Arnow, Kenardy, & Agras, 1992	To investigate the experience of binge eating among the overweight and increase the understanding about the process of disinhibition in this population.	N=19 admitted to Stanford University Behavioral Medicine Clinic study for psychological treatment of binge eating. Age 25-55 (m=44) Binge frequency for week prior to interview=5.2 (SD=2.9) BMI 28-45(m=35.1/ SD =5.4) History of binge eating m=19.6yrs (SD=11.1)	Comparative Semi-structured interview ANOVA Principal-components analysis	Diagnosed by clinical psychologist using semistructured interview to elicit: 1-Thoughts, feelings, and physical sensations before, during and after binge 2-Typical precipitants associated with binge eating 3-Presence of absence of restrictive "food rules" b/t binges 4-Factors identified as useful in coping with urge to binge. Inter-rater agreement b/t two Ph.D. candidates (clinical/counseling psychology)=85%	Relationship of cognitions, physical sensations and emotions to binge episode. Before/During/After Binge (%) <u>Cognitions:</u> Lack of self-control 5/26/5 Self-reproach 16/21/84 Intention to overeat 37/11/0 Alteration of mood 16/21/0 Absence of thoughts 16/16/5 Other 11/5/5 <u>Physical sensations:</u> Hunger 47/0/0 Pleasure 0/42/0 Fullness 0/16/54 Tension 0/0/0/ Other 5/5/0 None 47/37/16 <u>Emotions:</u> Positive 0/42/0 Negative 100/37/100 None 0/21/0 Physiological factors were rated as significantly less influential than thoughts,

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings
					mood, and interpersonal factors in precipitating and preventing episodes of binge eating ($p < .001$). Analysis of frequency of thoughts and feelings before binges in 3 weeks prior to interview (with only factor loadings > .45 reported due to small sample size) <u>(Component 1/factor loading)</u> Failure to control weight -.743 Misery .610 Hunger .590 Fearfulness .545 Making a new start tomorrow .532 Having eaten too much already .471 <u>(Component 2/factor loading)</u> Jitteriness .889 Anger with self .736 Irritability .702 Sadness .673 Tiredness .642 Having eaten something you shouldn't have already -.562 Anger with others .558
(Arnow et al., 1995)	To develop a questionnaire (EES-Emotional	N=47 obese females who had been accepted	Psychometric Instrument Development	25 item scale 5 pt Likert-type format	Study 1 Total scale α=.81 Subscales:

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings
	Eating Scale) that would permit a more detailed analysis of the relationship b/t negative mood and disordered eating. Study 1-to develop the item pool for the EES and investigate its psychometric properties Study 2-to assess the construct, discriminant and criterion validity of the EES Study 3-to assess the discriminant efficiency of the EES with subjects diagnosed with anxiety disorder.	into a treatment study targeting both binge eating and weight loss Met DSM-III-R criteria for bulimia nervosa without purging behavior Age 23-64 (m=44.9 SD 10.4) BMI m=37.9 (SD=6.0, range 26.1-51.7)	Factor analysis	(No desire to eat Small desire to eat Moderate desire to eat Strong desire to eat Overwhelming urge to eat) Study 2 Additional measures completed: Binge Eating Scale TFEQ (cognitive restraint of eating, hunger and disinhibition) Beck Depression Inventory Rosenberg Self-Esteem Scale Symptom Checklist- 7-day calendar recall for frequency of binge eating	Anger/Frustration =.78 Anxiety=.78 Depression=.72 2-wk test-retest r=.79, p< .001 Study 2/Study 3 Good evidence of construct validity, discriminate validity, criterion-related validity, and discriminate efficiency Evidence suggests that higher levels of binge eating are associated with the desire to eat when experiencing negative affect

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings
(Ganley, 1988)	To present the first post-development factor analysis of Stunkard and Messick's (1982, 1985) Eating Inventory (EI) on a large sample of adult women.	N=442 women from general population (supermarket shoppers) Married=345 Single or divorced=97 Age 25-40 m=33.2 SD=4.38 Education 10-18 yrs m=13.4 SD=2.09 All subjects in midrange of SES income $10,000-$75,000 m=$27,254 SD $10,818 % of subjects above or below desirable weight=ranged from	Psychometric Factor Analysis	<u>55-item Eating Inventory (EI)</u> Reliability for subscales: Dietary Restraint α=.93 T-RT=.93 Disinhibition α=.91 T-RT=.80 Perceived Hunger α=.85 T-RT=.83	Only reporting emotional eating results: Factor IV-new factor-eating during periods of dysphoric affect and was labeled emotional eating. None of these items on this factor were from the original Restraint Scale-researchers state this factor may represent a new dimension that has received little attention. 3 of the 4 items specifically dealing with eating related to dysphoric affect had the highest loadings of any item on any factor (.86, .78, and .72; with the fourth also loading high at .65.)

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings
		20.6% to 100% Stunkard & Messick's 1982 study done on sample of 220 subjects (97M/123F)			
(Hill et al., 1991)	To explore the relationship b/t dieting (dietary restraint) and food craving in a diverse section of the female population.	<u>PHASE 1</u> N=206 University students=38% University clerical and academic staff=24% Hospital nursing staff=21% Hospital clerical staff=17% Age range 18-75 (m=25) No SD given BMI range=17-40	Correlational/ Comparative Phase 1-Pearson product-moment correlations Phase 2-2-way ANOVA and unpaired t-test at each time point	<u>PHASE 1</u> <u>Dutch Eating Behaviour Questionnaire</u> 33-item questionnaire to assess restrained, emotional and external eating behavior. Each scale with range of mean scores 1-5 <u>Three-Factor Eating Questionnaire</u> 51-items to measure cognitive restraint, disinhibited eating and susceptibility to hunger <u>Food craving scale</u> Designed for this study 100mm VAS Two scales about frequency of food	<u>PHASE 1</u> Food craving was highly and significantly correlated with external eating, emotional eating and susceptibility to hunger. Inter-correlations b/t craving frequency & external eating=.46 craving frequency & emotional eating=.46 craving intensity & external eating=.38 craving intensity & emotional eating=.45 craving frequency & hunger=.42 craving intensity & hunger=.34 <u>PHASE 2</u> Cravers ate 12% more calories than non-cravers (non-significant) Cravers consumed 210 more calories in alcohol/day ($p < .01$)

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings
		(m=22) No SD given <u>PHASE 2</u> N=20 (from PHASE 1) willing to participate and invited based on food craving ratings. 10-Cravers regular and strong food cravings 10-Non-cravers very rarely craved food Cravers were significantly younger and scored slightly but not significantly higher on dietary restraint measures.		cravings and three about intensity. Scales were highly inter-correlated. <u>Self-report ht/wt</u> <u>PHASE 2</u> <u>Food intake diary</u> <u>Mood and hunger motivation ratings</u> 100mm VAS <u>Craving records</u> Qualitative information –14 questions regarding circumstance of craving (physical, somatic, affective), identify, characteristics and consequences of each food craving episode (consumption and affect)	Cravers had higher ratings of boredom during first half of the day ($p < .01$) Cravers had higher anxiety late in the evening ($p < .05$) Hunger present prior to craving in 5 women Negative emotional tone (angry, lonely, bored, upset or irritable) present in all but 1 of the women prior to craving.
(Macht, 1999)	To develop a questionnaire to systematically	N=210 F=107 M=103 Age 19-44	Comparative/ Correlational	<u>Questionnaire for study</u> 33 items that describe food and eating-related feelings, perceptions	Four factors extracted: Hunger Impulsive eating

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings
	examine the effects of anger, fear, sadness and joy on a number of eating characteristics.	(m=25/SD=4.2) Female BMI (m=20.9/SD =2.2) Male BMI (m=22.7/SD=2.4)	Principal factors extraction ANCOVA	and cognitions and behavioral characteristics of eating. Rated on 7-pt scale. Sequence of emotions counterbalanced. <u>Three-Factor Eating Questionnaire (TFEQ)</u> Restraint scores measured from Cognitive Restraint Scale of TFEQ	Sensory eating Hedonic eating Differences b/t emotions: Hunger higher during anger and joy than during fear and sadness ($p<.0001$) Higher tendency of impulsive and sensory eating reported for anger than other emotions ($p<.0001$) Impulsive eating higher for fear and sadness than joy ($p<.0001$) Sensory eating higher for sadness than joy ($p< .01$) Tendency to enjoy eating higher during joy than during negative emotions which did not differ in hedonic eating ($p<.0001$) Women reported more impulsive eating and more sensory eating than men during anger ($p<.05$) and sadness ($p<.01$) BMI correlated positively and restraint correlated negatively with self-rated changes of eating during negative emotions BMI correlated with hunger during joy negatively but with positively with restraint.(All correlations low-none exceeded .30 with 50% lower than .20)

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings
(Prest & Storm, 1988)	To explore the relationships of compulsive eaters and drinkers, especially codependent characteristics and empirically clarify the similarities and differences between compulsive eaters and drinkers.	N=40 10 compulsive eaters (CE)-all F 10 compulsive drinkers F=2 M=8 (CD) and their spouses, self identified and sought help from AA or OA Attended an average of 12 sessions but less than 6 mos. total None had been in previous therapy.	Descriptive 2-tailed chi-square analysis for categorical variables Fisher's Exact tests, t-tests for continuous variables Qualitative data utilized to substantiate or qualify quantitative data	<u>Structured Dyadic Interview for Compulsive Eaters and Compulsive Drinkers (SDI)</u> Interview instrument developed by Prest for this study (89 quantitative items/27 qualitative items) Submitted to experts for feedback for analysis regarding face and content validity. T-RT 86% of answers same using 22% of the questions given 1 month apart	Emotional factors contributed to compulsive eating behaviors-highest in compulsive eaters, but also noted in other groups. (reported in %) Compulsive Eaters/CE spouses Stress 90/60 Anxiety 90/50 Anger 90/20 Boredom 80/40 Loneliness 80/40 Sadness 60/10 Celebration 90/70 Interpersonal conflict 80/10 Social pressures 70/20 Undefined urges 70/10 Compulsive Drinkers/CD spouses Stress 30/40 Anxiety 30/30 Anger 0/40 Boredom 20/20 Loneliness 30/20 Sadness 10/10 Celebration 40/50 Interpersonal conflict 0/30 Social pressures 20/30

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings
					Undefined urges 10/30
(Ruderman, 1983)	To examine the relation b/t level of anxiety (relaxation, low, and high) and food consumption in obese and normal weight individuals.	83 female undergraduates enrolled in intro psychology class at Rutgers University Used Metropolitan Life Insurance Company norms for weight. 13% or more above ideal weight considered obese (n=41)less than 13% above ideal weight considered normal (n=42)	Comparative-Experimental MANOVA 2-way ANOVA	On arrival subjects given Subjective Units of Disturbance Scale (SUDS) Speilberger State Trait Anxiety Inventory (STAI) after completing forms Heart rate recorded using Brush 220 recorder and coupler. High Anxiety tape-experimental task of speaking to a man with the goal of impressing him Low Anxiety tape-requested to sit and chat casually with a research assistant Relaxation tape-instructed they were in the control condition and requested to sit and relax. All began with a 5-minute baseline period. After tape completed, heart rate recording was removed and SUDS and STAI completed for the second time.	Effect of anxiety manipulation on heart rate ($p<.001$) Multivariate contrast b/t relaxation and low anxiety groups ($p=.007$) b/t the high and low anxiety groups ($p<.001$) Effectiveness of the anxiety manipulation with self-report measures: High anxiety subjects reported greater anxiety on the SUDS and STAI ($p<.001$) Normal weight-anxiety did not significantly influence the amount eaten, however, tended to eat less when relaxed than when mildly or highly anxious. Obese ate significantly less when highly anxious than when mildly anxious. Obese-low anxiety group ate more than the obese-high anxiety group and the normal relaxation group ($p<.05$) Researchers stated that anxiety alone is not a

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings
				Taste Test Experiment with 3 flavors of ice cream-to rate the flavors and help themselves to any remaining ice cream. Ht and wt was then recorded	good predictor of eating patterns in obese and/or normal weight individuals-other variables, such as level of anxiety and context in which it occurs should be considered in a model predicting eating behavior.
(Schachter, Goldman, & Gordon, 1968)	To examine the effects of manipulated fear and food deprivation on the amounts eaten by obese and normal subjects.	N=91 Obese n=43 m age=20.5 m wt=184.1 Normal wt n=48 m age=19.9 m wt=152.6 students from Columbia University	Experimental	Experiment: Group1: full stomach condition-spent 15 mins. eating and filled out food-preference questionnaire Group 2 empty-stomach condition-Spent 15 mins. Filling out questionnaire. Manipulation of Fear: Before given 5 bowls of crackers (told they were assessing taste) to eat as many as they wanted, fear was manipulated by informing subjects they would use electric stimulation with a large machine. Low Fear condition subjects were told the lowest level would be used	Manipulation created differential fear in the two groups with high fear scores > low fear. Question 1: How anxious do you feel at present? ($p < .001$) Question 2: How nervous or uneasy do you feel about taking part in this experiment and being shocked? ($p < .01$) Researchers note crackers are neutral food with other experiments showing than obese out-eat normal subjects when "food is good", which may explain why overall amts eaten by normal and obese were almost equal. m # crackers (obese=18.3/normal=18.1)

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings
				with stimulation causing no feeling to a slight tingle. High Fear condition subjects were connected to machine, told shocks would be painful (without permanent damage) and asked if they had a heart condition. Before eating subjects filled out questionnaire to measure degree of fear.	Effects of Fear on Eating Behavior: Normal subjects: Ate fewer crackers when full High fear decreased amount eaten Obese Ate more when stomachs full High fear had no effect on amount eaten Fearful ate slightly more than calm

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings
(Slochower, Kaplan, & Mann, 1981)	To assess the effects of life stress on mood and eating in obese and normal weight individuals.	N=40 female undergraduates from an urban college 23 moderately overweight 17 non-obese	Comparative/ Correlational Repeated Measures 2-way ANOVA Repeated measures ANOVA Correlation coefficients presented but type test used not given	Session 1 no more than 5 hours before an exam Session 2 3 wks after the last exam (during summer vacation) Questionnaire 1 13 (9-point) mood scales focused on current emotional state, degree of distress-anxiety, loss of control over feelings and low self-esteem. Open-ended question to probe for explanations for their feeling state. Index of eating-obtained in context of a "thinking task". Designed to present eating as one of several activities. Experimenter placed several toys, paper and pencil and an open tin of 600g of M&M candy in front of student on a table. The student was told to "feel free to touch objects, doodle and eat the candy". They were left alone for 5 minutes before the objects were removed and the candy weighed to determine amount eaten.	Mood and self-esteem changed from Session 1 to Session 2. During exams, students felt more worthless $p<.001$, bad $p<.001$, Less playful $p< .005$. All response summed across the 7 mood scales-during exams more negative affect experienced $p< .0001$ Student weight had no significant effect on mood for any scale. Obese students ate significantly more during than after exams (high stress condition) $p< .001$ Obese student eating was related to the degree of anxiety experienced but normal weight students showed a similar but non-significant increase in eating. Correlation b/t anxiety, loss of control and eating Mood and Eating No mood scale was significantly correlated with eating at Session 1 Session 2-obese students' eating was related to the degree of depression ($r=.45$), worthlessness ($r=.50$), unhappiness $r=.42$) and anger($r=.43$) (all $p<.05$) One mood scale related to eating: depression ($r=.55$, $p<.05$)

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings
(Stickney, Miltenberger & Wolff, (1999)	To examine antecedents and consequences for binge eating in college students with symptoms of bulimia and binge eating disorder.	N=16 Female undergraduates from midwestern university Selected based on binge eating at least twice/wk with lack of control during binge episodes. Normal wt=9 Underweight=1 Overweight=4 Obese=2 Taking antidepressant medication=2 Received extra credit for participation	Descriptive	<u>Conditions Associated with Binge Eating (CABE)</u> Retrospective, self-report 15-item on 5-pt scale-to reflect emotional or affective states Binge eating interview (BEI) 32 questions on antecedents, consequences and setting events associated with binge eating and treatment history <u>Binge eating questionnaire (BEQ)</u> Identical to BEI but administered as questionnaire <u>Binge monitoring forms</u> 3 binge monitoring forms containing the 15 descriptors on the CABE to assess experience before, during and after binge eating. <u>Description of binge episode (DBE)</u> 5-item self-monitoring form to assess experience before during and after binge eating in an open-ended format	Answers from open-ended questions: Most frequent function of binge-eating behavior was Escape from negative feelings=45% Escape from negative thoughts =29% Frequency of the functions of binge eating based on monitoring form (relief from the following feelings or thoughts): Bored=50% Physically hungry=45% Worry about future=34% Worry about responsibilities=32% Lonely=26% Worry about problems=29% Dissatisfied with body shape/weight=24% Agitated or irritable=18% Angry at other=16% Down/sad=16% Frustrated=14% Angry at self=12% Anxious/nervous=12% Focused on food=2% Guilty=1%

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings
				Antecedent Checklist 21-item measure listing environmental events and emotional or physical states, adapted from the Setting Event Checklist-to indicate events during day prior to binge eating. Acceptability Questionnaire 7-items on 1-7 scale to assess perceived acceptability of monitoring methods and experience in the study.	
(vanStrien & Bergers, 1988)	To examine the relationship between overeating and sex-role orientations and the effects of anxiety and negative self-concept on this relationship. Two types of overeating	N=540 females (in an ongoing longitudinal study on overweight in the Netherlands as of Jan 1, 1981) Age groups 20-22 25-27 30-32	Correlational Product-moment correlation ANOVA Hierarchical multiple regression	Dutch Eating Behaviour Questionnaire (DEBQ) Validity and reliability not addressed Groninger Androgyny Scale (GRAS) α=.60-.86 Spielberger State Trait Anxiety Inventory (STAI) Dutch version Previous study α=.90	Emotional eating and external eating related to feminine stereotype traits (.24/.19 respectively) but not to masculine (.07) Emotional eating related to external eating (.52) Emotional eating related to anxiety and negative self-concept (.34/.30 respectively) External eating related to anxiety and negative

Author(s) Year	Purpose of Study	Sample	Design/ Analysis	Measures	Findings
	distinguished: (Emotional & External).	Study population and procedure described in other studies		Present study α=.85 <u>Dutch Self-Partner scale</u> (Subscales for positive and negative self-concept α =.87 & .88)	self-concept (.27/.23 respectively) External eating was negatively related to positive self-concept (-.20) Feminine stereotype traits positively related to anxiety and negative self-concept and negatively related to positive self-concept. Endorsement of masculine stereotype traits positively related to positive self-concept and negatively related to anxiety and negative self-concept. (all above significant at p<.01) Contribution of femininity to emotional and external eating behavior is due mainly to anxiety and negative self-concept associated with female stereotype traits (femininity no longer contributed significantly to emotional and external eating when anxiety and positive and negative self-concepts were included in analysis p<.01)

Codependency and Overeating

Only three studies were found addressing codependency and eating, however they did not specifically address overeating behavior. Meyer (1997) examined anorexia and bulimia while Meyer and Russell (1998) examined eating disorders, particularly bulimia. Allison (2005) assessed the influence of codependency and binge eating on body mass index (BMI). The details of these studies are included in Table 7.

Meyer (1997) studied the role of codependency in the relationship between stressful events and the development of eating disorders, of bulimia and anorexia. The individuals in that study assessed as codependent differed significantly from non-codependents on 10 of the 11 eating disorder variables including bulimia. Meyer and Russell (1998) examined the relationship between the cognitive and behavioral indicators of eating disorders and the characteristics of codependency. Given that bulimia shares the binging aspect of overeating, these studies were included in the review of literature. However, since this condition includes purging behavior as well, it is excluded from the Codependency-Overeating Model.

Allison (2005) investigated the indirect influences of codependency and binge eating on increased body mass index (BMI). The researcher also investigated the direct influences of age, ethnicity, education and number of children on BMI. On path analysis, Allison found a positive direct effect of Black ethnicity and a negative effect of Asian ethnicity on BMI. Binge eating was also found to be an effective predictor of obesity with codependent individuals but ineffective with Black individuals. Although Allison's study was specific for binge eating's effect on BMI, the results of this study was the impetus to this researcher's interest in developing a model to explain the relationship between codependency and overeating.

Table 7

Codependency and Overeating

Author(s) Year	**Purpose of Study**	**Sample**	**Design/ Analysis**	**Measures**	**Findings**
(Allison, 2005)	To investigate the direct influences of age, ethnicity, education, and number of children and the indirect influences of codependency and binge eating on increased body mass index (BMI).	511 women Employed full time or part time as RN or LVN in Texas m age=45 (SD=8.8) White=62.8% Black=16.4% Asian=12.5% Married=63.6% ADN education=41% Had children=72.6% (avg #=2.2/SD 1.35) Overweight=52.1% m BMI=27.3 (SD=6.6)	Causal Modeling Path analysis	<u>Nursing Codependency Questionnaire (NCQ)</u> T-RT=.65 α=.81 <u>Biographic information</u> Self-report regarding gender, children, education, ethnicity, age, ht, wt, binge eating history	To assess the adequacy of the psychobehavioral variables as mediators in the full model predicting BMI-binge eating was regressed on codependency and on the biographic variables. Overall model was significant ($p < .01$) , but low effect size reflected in high residuals and small R^2 (.05). Residuals: binge eating = .96,BMI= .85 and codependency = .99 . Path coefficients indicated significant relationships with BMI: binge eating = .260, age =.210, Black ethnicity = .204, codependency = .057 and Asian ethnicity = -.167. Individual paths were assessed to trim path model. BMI was regressed on age, binge eating, and ethnicity, binge eating was regressed on codependency and Black ethnicity. Deleted paths-education to codependency, binge eating and BMI; white ethnicity to codependency, binge eating and BMI; Asian ethnicity to codependency and binge eating, Black ethnicity to codependency; codependency to BMI; and number of children to BMI. Trimmed model inspected for the indirect effects of education, Black and Asian ethnicity, and codependency on BMI. Results: indirect path through binge eating

					significantly mediated the relationship b/t Black ethnicity and BMI (R= -.14). When relationship controlled for binge eating, Black ethnicity exerted a larger effect on BMI (*b* =.20), suggesting that Black nurses in sample were overweight for reasons other than binge eating. Codependency was not an independent contributor to BMI, but did exert significant indirect effect on BMI through binge eating (R= .13).
(Meyer, 1997)	To investigate the similarities between excessive codependency and eating disorders; explore the association of each to stressful events.	See Table 4	See Table 4	See Table 4	Codependents were more likely to have experienced a chronic stressful event (including association with an alcoholic family member) than participants not assessed as codependent ($p < .01$) Result coincides with view of codependency as a coping mechanism to escape the negative feelings of growing up in a constrained, volatile family environment. Codependents exhibited more eating disorder symptoms (not overeating) than non-codependents.
(Meyer & Russell, 1998)	To investigate the relationship between the cognitive and behavioral indicators of eating disorders and characteristics of codependency, including	n=95 women large, midwestern university Age 18-32 (m=20.3)	Comparative/ Correlational MANOVA Multiple Regression	<u>Codependency assessment (CA)</u> T-RT for subscales= .53-.86 α=.97 Concurrent validity demonstrated <u>Psychological Separation Inventory (PSI)</u>	Codependents differed significantly from non-codependents on 10 of 11 EDI-2 subscales: (F and p values given only-no r) Drive for thinness F=14.80 (p = .0002) Bulimia F= 9.67 (p = .0025) Body dissatisfaction F= 17.43 (p = .0001) Ineffectiveness F= 34.65 (p = .0001) Interpersonal distrust F= 24.21 (p = .0001)

	exaggerated caretaking and constricted emotion.	Caucasian=80% Asian-American=11% AA=6% Biracial=3% Volunteers for course credit		138-items to assess parental separation/individuation Contains 4 subscales T-RT=.70-.96 α=.88-.90 <u>The Eating Disorder Inventory-2 (EDI-2)</u> 91-items 8 subscales T-RT=.65-.97 α=.70-80 for eating disorder samples α=.44-.80 for non-patient samples Evidence of construct validity, criterion validity and concurrent validity noted	Interoceptive awareness F= 34.26 (p = .0001) Maturity fears F= 12.42 (p = .0007) Asceticism F= 15.38 (p = .0002) Impulse regulation F= 27.59 (p = .0001) Social insecurity F= 35.30 (p = 0001) Perfectionism F= 1.02 (p =.3153)not significant Seven of the eating disorder variables were not related to parental separation. Parental separation did not predict: Drive for thinness R^2= .17 (p= .02) Bulimia R^2= .14 (p = .05) Body dissatisfaction R^2= .17 (p = .01) Ineffectiveness R^2=.17 (p = .01) Interpersonal distrust R^2= .15 (p = .04) Maturity fears R^2=.17 (p = .02) Perfectionism R^2= .17 (p = .01) Parental separation predicted 4 of the 11 eating disorder subscales: Interoceptive awareness R^2= .024 (p =.001) Asceticism R^2= .23 (p= .003) Impulse regulation R^2= .28 (p = .002) Social insecurity R^2= .23 (p =.0001) Majority of variance in eating disorder symptoms accounted for by parental separation is due to a lack of conflictual independence from parents.

Summary

This critical analysis of the literature on the relationships proposed in the COM provided a review of the interactions among the concepts. Although it is not a comprehensive review of all potential interactions among the concepts, it provided a foundation for this study. The literature was organized into several sections, based on the proposed links in the predictive COM. These sections included studies confirming the factors from the Hughes-Hammer, Martsolf and Zeller model of codependency along with the links between each factor (family of origin issues, hiding self [repression and denial], other focus/self-neglect and low self-worth), studies linking codependency and each of the psychological problems (anxiety, depression, compulsivity and anger), and studies linking negative moods and overeating.

Numerous studies confirmed the relationship between the factors in the Hughes-Hammer, Martsolf and Zeller (1998a) model of codependency as well as the links between each of these dimensions of codependency. Eight studies agreed that stress from family of origin issues correlated with codependency. Other links with a considerable amount of available research include the connection between codependency and anxiety, codependency and depression, and negative moods and overeating. Negative moods included, but not limited to were anxiety, depression, compulsivity and anger particularly in the studies regarding negative moods and overeating. Negative moods reported to be linked to overeating not included as components of the COM include fear, sadness, boredom, irritability, celebration, and negative self-concept.

Fewer studies were found to connect compulsivity or anger to codependency or overeating and overeating to codependency. Several studies substantiated links in the model, however, the terms were not specifically labeled the same as in the model. The research findings were strengthened with expert opinions from the codependency field.

A model had not been developed that proposes predictive relationship(s) between codependency and overeating and no literature found to explain all of the relationships proposed in this original COM. As described in detail in Chapter 1, the literature gap was apparent regarding the relationship between overeating and codependency and the confounding variables that exist. The goal of this study was to make a significant contribution to the obvious gap in the literature and to improve the understanding of the

links between codependency and overeating. Improved understanding can lead to enhanced patient care through more successful nursing interventions and treatment methods.

MATERIALS AND METHOD

Materials and Methods

Chapter 1 described the development of the Codependency-Overeating Model (COM), an original model created to address and illustrate the theorized relationships between the two concepts. Goals for the study included improved understanding of these relationships that could eventually lead to more successful nursing interventions and treatment methods for overeating. Chapter 2 provided a detailed review of the literature regarding the links between codependency, psychological problems and overeating. This chapter presents the research design, sample, instrumentation, protection of human subjects, data collection procedures and statistical analysis.

Research Design

This predictive study tested the Codependency-Overeating Model (COM) by examining the relationships between the variable of interest, overeating and the proposed predictor variables of codependency, anxiety, depression, anger and compulsivity while controlling for extraneous variables that might have influenced these predictor variables.

The goal of this model testing correlational design was to systematically remove the influence of each demographic variable, one by one, on the variable of interest. That approach was necessary in order to prevent the demographic variables from becoming confounding variables. This goal was achieved through careful design and execution of sound sampling, collection of data, use of valid and reliable instruments, wording of the Cover Letter (Appendix E) and the explanation to the subjects and through statistical control. The instruments were given in a random order during data collection to avoid "learning from the instruments" (Black, 1999). This "learning from the instruments" can change attitudes as a result of completing the questionnaires. In other words, the first questionnaire can create response bias on subsequent questionnaires by influencing the subject's awareness of what is wanted, expected or socially acceptable (Black, 1999). Extraneous variables that were controlled statistically were age, race, gender, surgical history, medical conditions and history of personal substance abuse.

Sample

The population of interest for this study included all students enrolled at Northwest Mississippi Community College (NWCC) in Senatobia, Mississippi (MS). These students included those on the Senatobia, Desoto and Oxford campuses. The

accessible population included undergraduate students enrolled in a behavioral science course in this MS community college. The sample for this study included students enrolled in introductory psychology and sociology courses at NWCC. Undergraduate college students often constitute the target population and sample in studies with examples described on Tables 4-7 in Chapter 2 (Carson & Baker, 1994; Crothers & Warren, 1996; Fischer, Spann, & Crawford, 1991; Gotham & Sher, 1996; Harkness, 2001, 2003; Hill, Weaver, & Blundell, 1991; Slochower, Kaplan, & Mann, 1981; Stickney, Miltenberger, & Wolff, 1999). Undergraduate students enrolled in psychology courses were also the subjects in several studies listed in the review of literature (Cullen & Carr, 1999; Goodhart, 1985; Ruderman, 1983; Schachter, Goldman, & Gordon, 1968; Springer, Britt, & Schlenker, 1998). Numerous studies not included in Chapter 2 were found that examined eating, weight, emotions or codependency issues in undergraduate students with the majority comprised of female psychology students.

This study utilized a stratified cluster random sampling technique supervised by Lei Zhang, PhD, MSc, MBA, Director of the Mississippi State Department of Health Office of Health Data and Research, located in Jackson, MS. The sample was stratified by campus with a random selection of class sections chosen from all introductory psychology (PSY 1513) and sociology (SOC 2113) students within each campus and among online students. The NWCC computer operator was contacted after Spring 2011 registration was complete to generate a list of class sections enrolled in Psychology I and Sociology I courses from each campus and online. Sections were randomly selected from this list. Based on the number of students enrolled in each campus and the online classes for psychology and sociology, the required participation from each campus and online class was proportionally assigned based on the class section number.

The sampling frame included a total of 1653 NWCC students. Any given individual student could have been enrolled in sociology and psychology courses, therefore the students were asked during the explanation of the study to complete only one set of questionnaires. The Contact Information Sheets were checked for duplicate names with none found; therefore it was assumed that the students honored the researcher's request. Criteria for inclusion in the study were: (1) undergraduate students in selected psychology or sociology course; (2) 18-65 years of age. Exclusion criteria

were: (1) under age 18 years or over 65; (2) students enrolled in the NWCC Associate Degree Nursing (ADN) program where the researcher is an instructor. Packets were prepared for 1273 students, however a total of 810 were actually given to potential participants. By the time data collection had occurred, students had withdrawn, failed the course due to absences or were absent the day of data collection. A total of 602 packets were returned for a response rate of 74.3%, with 567 students completing all 4 questionnaires (response rate = 70%). A priori power analysis was conducted to determine a power of 0.86 for a target sample size of 590. Additional power analysis revealed a sample size of 567 yielded a power of 0.84.

The recruitment strategy for this study included the following techniques: (1) Use of a courteous, respectful, nonthreatening information letter to the students requesting participation; (2) Cover Letter included the purpose, risk and benefits of the study; (3) Cover Letter included acceptance of the study by the University of Mississippi Medical Center School of Nursing, approval by NWCC administration and supervision by dissertation chairperson, Dr. Barbara Boss and IRB expedited review; (4) Cover Letter included assurance of voluntary participation, confidentiality and publication issues; (5) Sharing of the results in the form of a study summary would be sent to the participating faculty after completion of the analysis with a study summary posted on the NWCC website; (6) Distribution and collection of questionnaires at a time and location convenient for the students; (7) Class time utilized to explain study and answer questionnaires; (8) Solicitation by the researcher without any coercion; (9) Optional incentive drawing for 3 gift cards ($100 value each); (10) Questionnaires and Cover Sheet professionally written with clear and inoffensive language. The recruitment strategy ensured an adequate number of participants who met eligibility criteria for the study and maximized the representativeness of the population.

Instrumentation

Each variable in the model was measured with an instrument chosen for its reliability and validity. Feasibility of the instruments was also a consideration. Specific aspects considered were cost of the instrument and the average time to complete the questionnaire. The variable of interest in the COM, overeating, was measured with the overeating score on the Overeating Questionnaire (OQ). The OQ was purchased from

Western Psychological Services (WPS). The predictor variable of codependency and the factors of codependency were measured with the Codependency Assessment Tool (CODAT). Permission to use the CODAT was granted by Dr. Donna Martsolf, co-author of the instrument. The predictor variables of anxiety, depression, compulsivity and anger were measured with the Symptom Checklist-90-Revised (SCL-90-R). The SCL-90-R was purchased from Pearson Education, Inc. Each of these tools is described below with copies included in the appendices.

Information Sheet. The Information Sheet (Appendix B) was developed by the researcher and distributed with the instruments to collect demographic and health related data about the sample. Demographic information included academic standing, residence, major, enrollment in on line class, income (personal and household) and ACT® score. The health related variables assessed included the existence of pregnancy, anorexia, bulimia, other eating disorders and surgical procedures such as lap band, gastric by-pass, or any other procedure that decreases stomach size. Other health related questions included a history of diabetes, hypoglycemia, cancer, heart disease, thyroid problems, gastroparesis or any condition that affects appetite, absorption or digestion of food. The Information Sheet was piloted with one psychology class on January 18, 2011 at 8:00 am, which included 25 students. Based on the pilot results, a revised Information Sheet was approved by the dissertation committee and the IRB before data collection began.

OQ (Overeating Questionnaire). Overeating, the dependent variable of interest in this predictive study was measured by the OQ, an 80 item self-report questionnaire. According to WPS, the publisher of the OQ, most instruments related to eating behavior focus on bulimia and anorexia, while the OQ measures the key habits, thoughts and attitudes related to obesity. The OQ is written at a fourth-grade reading level. The OQ was developed over several years with the process described in detail in the OQ Manual. Norms are based on a nationally representative sample of 1788 individuals aged 9 to 98. OQ scores correlated with other measures of eating-related characteristics, BMI, health habits, mood disturbance, social functioning and successful engagement in weight loss activities (O'Donnell & Warren, 2010). Technical support and interpretive consultation was also available from WPS. Crohnbach's α for the OQ ranged from .79 to .88 with .80 for the overeating scale. Test-retest reliability ranged from .64 to .94 with the overeating

scale reported as .64. The overeating score relates to the tendency to continue to eat even after hunger is satisfied. The items that contributed to the overeating score included: "I always eat too much, I can't say "no" to food at parties, If there is food left after a meal, I finish it rather than put it away, I feel I should always eat everything on my plate, I have gone on an eating binge, I hide the fact that I eat too much from other people, I stuff myself when I eat, I have trouble controlling how much I eat". The overeating raw score was converted to a T-score by hand on each participant's profile sheet as directed by the OQ instruction manual. The T-score is a normalized standard score with a mean of 50 and SD of 10. The use of the normalized standard score makes it easier to compare scores across scales that have different numbers of items and distributions of scores. The score provides a comparison of an individual's scores with the average performance of the normative group on which the scores are based (O'Donnell & Warren, 2010).

The OQ was hand-scored by using the OQ AutoScore ™ Form. The student was instructed to complete all items to insure the accuracy of the test results. Scoring instructions were detailed in the OQ manual. Interpretation of the OQ began with an inspection of two validity scores: Inconsistent Responding (INC) and Defensiveness (DEF). These scores help to assess response bias and identify instances in which the participants' responses may not have been based on the content of the items. The INC score is a count of the number of item pairs for which certain item's ratings differ by 2 points or more. An INC score of 5 indicates there is a 71% likelihood that the examined responded to the items without sufficient regard for their meaning to give an accurate description of self. An INC score of 6 indicates 92%, and ≥ 7 indicates 98 %. The Defensiveness (DEF) scale consists of seven items that denote idealized self-statements. A high DEF score ($\geq$ 60T) may indicate that the participants did not have a realistic picture of themselves or were not willing to share information and raises doubt about the accuracy of the responses to the other OQ items (O'Donnell & Warren, 2010). All information collected by the OQ was entered in Excel and exported to SPSS, however, the overeating score and height/weight were the only data used in the analysis.

CODAT (Codependency Assessment Tool). The CODAT is a 25-item 5-point Likert-type scale to assess codependency. The major advantage to this instrument included its comprehensiveness, internal consistency, test-retest reliability and criterion

group validity. Additional advantages included its grounding in the Wegschieder-Cruse and Cruse (1990) model and ability to measure the factors of the Hughes-Hammer and Martsolf model of codependency (family of origin issues, low self-worth, other focus/self-neglect, hiding self [repression and denial], and medical problems) (Hughes-Hammer, Martsolf, & Zeller, 1998a). Content validity was established with eight experts in the codependency and substance abuse field. Based on their feedback, items were revised with 70 items of the original 250 omitted. Detailed information regarding the development and testing of the instrument is found in research reports (Hughes-Hammer et al., 1998a). Hughes-Hammer et al. (1998b) cited the substantial overlap between each dimension of codependency measured in the CODAT as verification that the construct validity of the CODAT with depression has been established. Criterion validity, determined by known group techniques was established with a group of women treated for codependency and 38 controls. (other focus/self/neglect $\eta 2=.21$; self-worth $\eta 2=.38$; hiding self [repression and denial] $\eta 2=.15$; medical problems $\eta 2=.33$; family of origin issues $\eta 2=.27$; total score $\eta 2=.48$). Reliability data for the CODAT included test-retest reliability and Crohnbach's α (respectively) is as follows: Other focus/self-neglect .86/.85, self-worth .90/.84, hiding self [repression and denial] .78/.80, medical problems .94/.75, family of origin issues .90/.81 with total scale reliability .90/.91 (Hughes-Hammer et al., 1998a).

Scoring for the CODAT included a total score calculated by summing the responses on all 25 items. The possible range of scores is 25-125 with minimal codependency score=25-49; mild to moderate codependency=50-74; moderate codependency=75-99 and severe codependency=100-125. Subscale scores were also calculated, with a range from 5-25 for each scale. Items for each subscale include other focus-1, 2, 3, 5, 8; self-worth-4, 17, 21, 24, 25; hiding self [repression and denial]-10, 11, 13, 14, 18; medical problems-6, 7, 9, 12, 16 and family of origin-15, 19, 20, 22, 23. Demographic and health related information collected from the CODAT included sex, age, race, religion, practicing of religion, marital status, number of children, level of education, occupation, employment status, previous hospitalizations for mental health problems including number and reason for hospitalization as well as present or past alcohol or drug problem for self, spouse or significant other or parents.

Symptom Checklist-90-Revised (SCL-90-R). The predictor variables of anxiety, depression, compulsivity and anger were measured with the SCL-90-R found in Appendix D. The SCL-90-R is a 90-item multidimensional tool that provides an index of symptom severity for 9 primary symptom dimensions and provides an overview of the symptoms and their intensity at a specific point in time. The symptom scales for the Primary Symptom Dimensions that measured the independent variables in this study included: (1) depression-reflects a range of the manifestations of clinical depression including symptoms of dysphoric mood and affect, feelings of hopelessness, suicidal thoughts and other cognitive and somatic correlates of depression; (2) anxiety-includes general signs and somatic correlates of anxiety; (3) hostility-reflects the thoughts, feelings, or actions characteristic of anger; (4) obsessive-compulsive-focuses on thoughts, impulses, and actions identified with obsessive-compulsive clinical syndrome and used in this study to measure compulsivity.

The answers given to the 90-item multidimensional questionnaire were entered into Q Local™, a computerized scoring and reporting system purchased from the publisher. Item verification was completed for each questionnaire. An interpretive report was generated with the raw and T-score entered into the spreadsheet. The depression score reflects a range of the manifestations of clinical depression including symptoms of dysphoric mood and affect, feelings of hopelessness, suicidal thoughts and other cognitive and somatic correlates of depression. The anxiety score includes the general signs and somatic correlates of anxiety. The hostility score reflects the thoughts, feelings, or actions characteristic of anger. The obsessive-compulsive score focused on thoughts, impulses, and actions identified with obsessive-compulsive clinical syndrome and measured compulsivity. Symptoms of the depression dimension included 13 items on the questionnaire (loss of sexual interest or pleasure, feeling low in energy, being trapped or caught, lonely, blue, no interest in things, hopeless about the future, everything is an effort, crying easily, thoughts of ending life, blaming self for things, worrying too much about things, worthlessness). Symptoms of the anxiety dimension included 10 items (nervousness or shakiness inside, trembling, suddenly scared for no reason, feeling fearful, tense or keyed up or so restless not able to sit still, hear pounding or racing, spells of terror or panic, feeling that something bad is going to happen, thoughts and images of

a frightening nature). Symptoms of the hostility (anger) dimension included 6 items (feeling easily annoyed or irritated, temper outburst that could not be controlled, getting into frequent arguments, shouting or throwing things, having urges to beat injure or harm someone and having urges to break or smash things). Symptoms of the obsessive-compulsive dimension (compulsivity) included 10 items (repeated unpleasant thoughts, trouble remembering things, worried about sloppiness or carelessness, feeling blocked in getting things done, having to do things slow to insure correctness, having to check and double-check, difficulty making decisions, mind going blank, trouble concentrating and having to repeat the same actions such as touching, counting or washing).

This instrument can be administered to individuals 13 years and older with a 6th grade reading level. Norms have been established with adult non-patients, psychiatric outpatients and inpatients as well as adolescent non-patients. Internal consistency scores on a 1976 study ranged from .77 for psychoticism to .90 for depression with a 1988 study documenting a range of .84 for interpersonal sensitivity to .90 for depression. Test-retest reliability for a 1983 study cited a low of .78 for hostility to a high of .90 for phobic anxiety. A 1988 study documented a range of .68 for somatization to .83 for paranoid ideation and test-retest reliability for the GSI as .84 (Derogatis, 1994).

Additional questions on the SCL-90-R included name, identification number, birth date, test date and gender. The participants were asked not to enter a name. According to a Pearson product specialist, the identification number, birth date, test date and gender were required fields for the Q-Local computer program; however the date of birth and test date was not entered into the data spreadsheets.

Protection of Human Subjects

Permission to conduct the study at NWCC was obtained from the president of NWCC with documentation provided in Appendix F. The researcher also obtained the support and cooperation of the appropriate administrative directors as well as the classroom instructors for the courses.

An expedited review was obtained from the University of Mississippi Medical Center (UMMC) Institutional Review Board (IRB). The activities involved in this study include research on individual characteristics or behavior and surveys. The study therefore qualified for an expedited review. The study was audited by the Office of

Integrity and Compliance in May, 2011 during data collection with no compliance issues found. IRB approval and audit documentation is located in Appendix G and H. The participants were informed of the purpose, risk, benefits of the study and assured of confidentiality and anonymity in the Cover Letter and during the researcher's verbal explanation in the classroom. They were informed that participation was voluntary, non-participation would not affect their grade and their instructor would not know if they participated. The instructors were asked to leave the room during the completion of the questionnaires. The data collection boxes remained in the instructor's offices and were carried to the classroom for the students to deposit the completed questionnaires. The boxes were locked with a slot designed to prevent unauthorized access. The researcher kept the only key to the boxes. Confidentiality was maintained by storing of all data in a password protected data file with no names included in the questionnaires. The Contact Information Sheets (which were optional) were removed immediately from the packets, maintained securely and separate from completed questionnaires. The incentive drawing was completed after all packets were returned in May 2011, at which time; all Contact information sheets were shredded. The three participants who received the gift cards initialed a form documenting the receipt of the gift card. All questionnaires and data related to the study remain in a locked storage accessible only to the researcher, and will remain so for 5 years, at which time questionnaires will be destroyed.

Data Collection Procedure

The data collection packet including the Cover Letter, Contact Information Sheet, Information Sheet, CODAT, OQ, SCL-90-R and a #2 sharpened pencil were organized in a large envelope. The envelope and all instruments inside (excluding the Cover Letter and Contact Information Sheet) included the participant's code number. The code number indicated the class section in which the participant was enrolled and their individual number. (Example: 172-01-1 indicates psychology class section 1513, Senatobia Campus, MWF 8 AM class, Instructor: L. McDowell, student participant #1). Packets were prepared for the number of students in each class with the contents placed in the envelope in the following order: Cover Letter, Contact Information Sheet, and Information Sheet. The CODAT, OQ and SCL-90R were randomized for each class section. Information on code numbers were kept by the researcher to identify the course

the student was enrolled as the time and date of data collection. Data collection packets were assembled under the direction of the researcher.

A codebook was developed that included definitions for each variable, abbreviated variable name, variable label, the range of possible numerical values of each variable that was entered into the computer file. The codebook also contained copies of all instruments, manuals for the instruments, the Information Sheet, the list of code numbers that corresponded to each class section, instructor contact information, data collection schedule, student instructions, information on using SPSS and data entry. The codebook was reviewed by the biostatistician prior to data collection and continued to be updated and revised during the data collection process.

All faculty members teaching psychology and sociology on the three campuses (Senatobia, Oxford and Desoto) were contacted via email to explain the study and request their cooperation for the Spring 2011 semester. They were contacted in January 2011 for a data collection time after the classes were selected. They were asked not to discuss the study with the students in advance.

The Contact Information Sheet (Appendix I) was developed to enter the participant into an optional incentive drawing for a $100 Walmart gift card. The participants were informed that entering the drawing was optional and they did not have to complete the form to participate in the study. The drawing was completed after all questionnaires were collected with one name drawn from each campus, with online students placed in the Oxford campus drawing. If the student chose to participate in the drawing, they were asked to complete the Contact Information Sheet. The Contact Information Sheet was immediately removed by the researcher from the envelopes and held in a separate envelope, therefore the name could not be associated with the answers on the questionnaires. Only the researcher viewed the Contact Information Sheet of those students who chose to participate in the drawing.

On the day of data collection, the students were greeted by the researcher and given the data collection packet. The researcher explained the study, emphasizing confidentiality, anonymity and the use of the data and the course instructor was asked to remain outside of the classroom while the students completed the questionnaires. The students were informed that participation would be voluntary. The Cover Letter

(Appendix E) accompanied the questionnaires and explained the purpose of the study, benefits, risks, confidentiality and privacy issues. Consent to participate was assumed with return of the questionnaires. The students were asked to complete only one set of instruments, even if they were in more than one class in which recruitment took place. They were asked not to participate if <18 or >65 years of age or if enrolled in the NWCC ADN nursing program where the researcher was an instructor. There were no students excluded due to age, with two potential participants excluded when they identified themselves as ADN program students. The researcher explained the procedures for completing the instruments. If questions regarding the instruments were asked, the meaning of an item was briefly clarified. They were instructed to complete the instruments and forms during class and place them back into the envelope. If the student completed all forms during the class period, they were collected at that time. If they did not finish the instruments, they were asked to complete them on their own time and drop the packet into the box in the classroom. They could keep the Cover Letter and pencil, discard, or place them back in the envelope. They were instructed to complete the Contact Information Sheet if they chose to participate in the gift card drawing and informed that this sheet would be removed immediately from the envelopes and kept separate from the questionnaires. The students were given an opportunity to ask questions and thanked for their time and participation. A large, locked box was placed at a location in the classroom determined by the instructor for the course. The instructors for the courses were asked to keep the box in their personal office and take the box to the classroom during the period of time the students would be returning the envelopes. The students were assured that only the researcher had keys to the boxes to insure anonymity, students were also given assurances that the data would be pooled for analysis. The box displayed a Cover Letter placed in a plastic page protector taped to the front with an arrow indicating where the drop slot was located. The participants were asked to place the envelope into the box within one week. At the one week point, the researcher revisited the classroom to ask the students who wanted to participate to complete the questionnaires within one additional week. The students who did not want to participate were also asked to return the blank questionnaires. After two weeks, the data collection

boxes were collected. The box remained locked; therefore individual envelopes could not be accessed without destroying the entire box.

Online students were on campus once or twice for a proctored examination, depending on the instructor's requirements. After the class sections were chosen and the dates for the on-campus examination set, the students were contacted via Blackboard to explain the study and the options for participation. If the student was on campus on two occasions, the researcher attended the first examination, to explain the study and request their participation. The researcher returned on the day of the second examination to collect the questionnaires. If the student was scheduled for only one on-campus examination, the researcher notified the students via Blackboard that they could come one hour before or remain one hour after the examination to complete the questionnaires in a room next to their classroom. Before the examination, the researcher also verbally explained the study and informed the class that they could complete the questionnaires after the examination (in the designated room), and return the questionnaires to the locked box available in the instructor's office.

Statistical Analysis

Data preparation. Data obtained from the return of the questionnaires were reviewed for completeness and adequacy. The procedure for utilizing OQ and SCL-90-R questionnaires with missing data was delineated by the publisher manuals. Dr. Donna Martsolf, dissertation committee member and co-author of the CODAT was available for consultation on scoring and missing score issues. If a subscale had ≤ 2 missing scores, the average for the other items in that subscale was used. There were 25 questionnaires that had missing data on two items. No questionnaires had more than two missing data points. Data were entered into four separate Excel spreadsheets by the researcher then exported into SPSS. The codebook was used to assist the researcher in converting the data into pre-planned variables and to accurately enter data into the computer program. Variables were re-categorized after input from the dissertation committee and under Dr. Zhang's supervision.

Two individuals were trained to score the OQ and SCL-90-R. A doctoral student at UMMC was instructed by the researcher in the scoring of the OQ and the SCL-90-R. She scored approximately 150 Overeating Questionnaires and generated approximately

300 SCL-90-R reports to be entered in the data spreadsheets. A colleague was instructed on the scoring of the Overeating Questionnaire and subsequently hand-scored approximately 450 of the questionnaires. The scoring assistants were given a codebook and manual for the instruments with the researcher available to answer questions when needed. Dr. Zhang supervised an ongoing data entry quality control procedure. Data were verified and cleaned with attention to the numbers on the spreadsheets for outliers and wild codes. The researcher monitored the spreadsheets for internal data consistency, referring to the original questionnaires when needed. All answers to the SCL-90-R questionnaires were verified by re-entering scores into the Q-Local program and discrepancies corrected prior to printing the interpretive report. Data verification also included 10% of all data monitored for accuracy. Audit results revealed <2% error rate for scoring and data entry. Scoring error rates for OQ and SCL-90-R respectively were 0.25- 0.37%. Data entry errors for the CODAT, SCL-90-R, OQ and Information Sheet were 0.08%, 0.15%, 0.25% and 1.53% respectively.

Data analysis. Descriptive statistics were used to summarize and describe the characteristics of the sample to include all of the demographic and health related information collected by the instruments. The participants were compared statistically to the NWCC population with a determination that weighting was not needed. The demographics for the NWCC students, Spring 2011 semester is presented in Appendix J with the complete demographic information for this sample presented in Appendix K.

The data were prepared for analysis, including screening for normality and outliers by assessing two graphical methods: boxplots and frequency polygons. The graphical assessment of the normality of the data is presented in Figure 5. According to the SPSS guidebook, a simple guideline for skewness is: "if the skewness is less than plus or minus one (< +/- 1.0), the variable is at least approximately normal" (Leech, Barrett & Morgan, 2005, p. 28). The skewness for the research variables is presented in the Table 10. The codependency (CODAT) scores are observed to be skewed with outliers noted. However, when compared to the original data, these scores were found to be true, legitimate values.

Based on the skewness, CODAT scores were not normally distributed (see Table 8). In order to satisfy the normality assumption required by the statistical methods used in

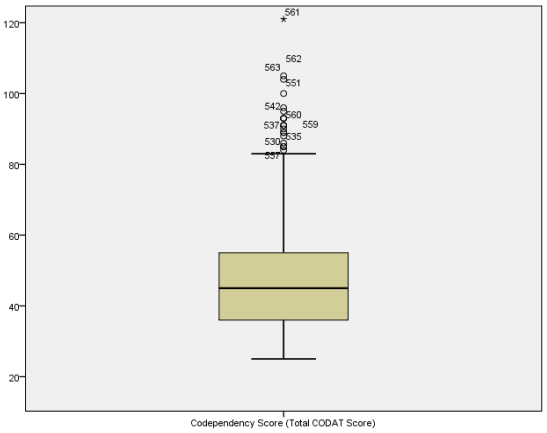
this study, CODAT scores were log transformed. After the transformation, the skewness decreased to 0.379. The distribution of the CODAT scores in log scale became normally distributed (Figure 6). Hence, the CODAT log transformed scores were used for all analysis. However, age continued to the skewed even after log transformation was conducted, decreasing from 2.45 (see Figure 5) to 1.885 (see Figure 6).

Table 8

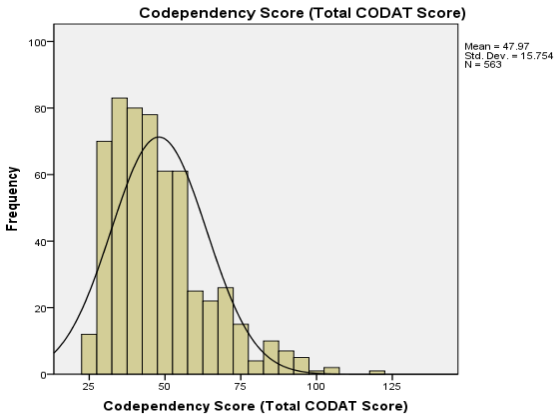
Skewness of the Major Research Variables

Variable	Skewness
CODAT scores	1.14*
Overeating scores	0.012
Compulsivity scores	-0.32
Depression scores	-0.126
Anxiety scores	0.062
Anger scores	0.053

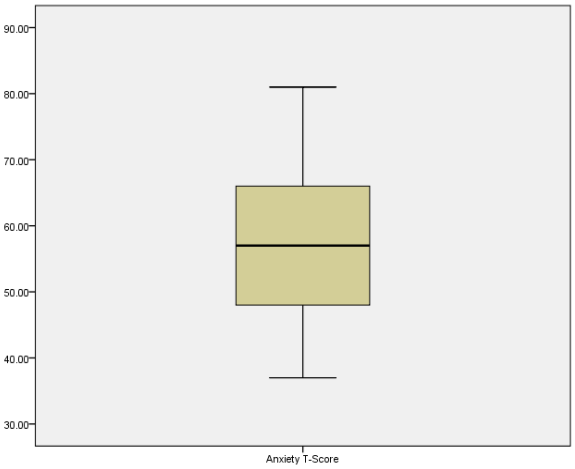
* > +/- 1.0



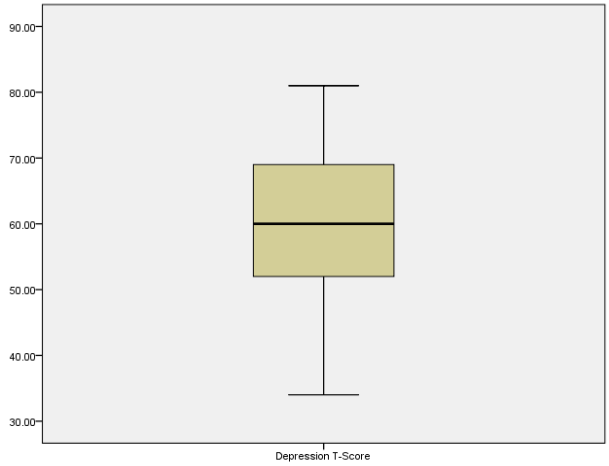
Boxplot: Codependency Scores



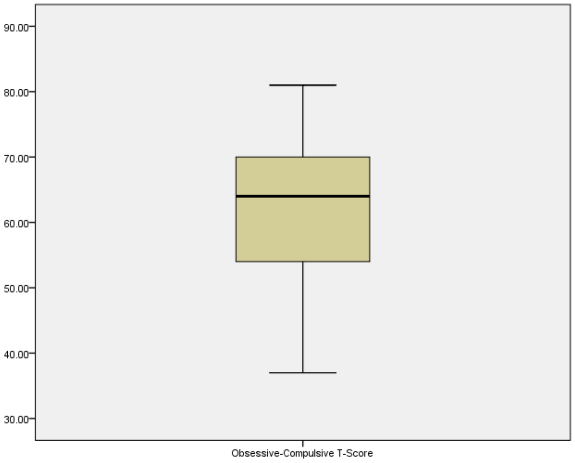
Histogram: Codependency Scores (Original)



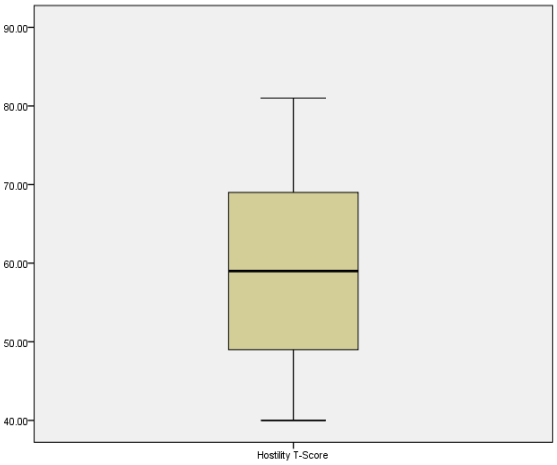
Boxplot: Anxiety Scores



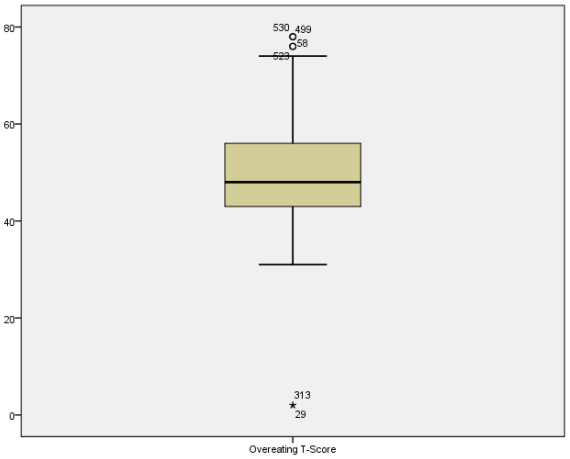
Boxplot: Depression Scores



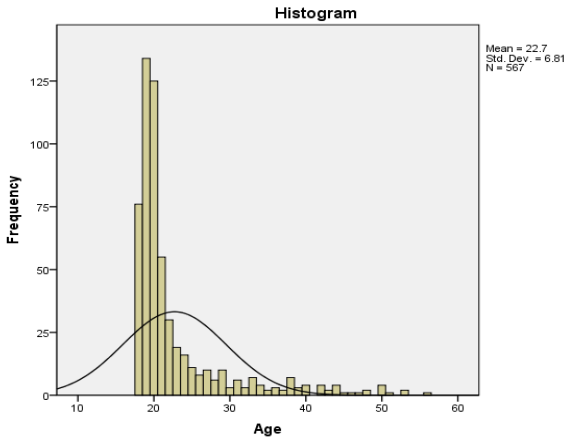
Boxplot: Compulsivity Scores



Boxplot: Anger Scores



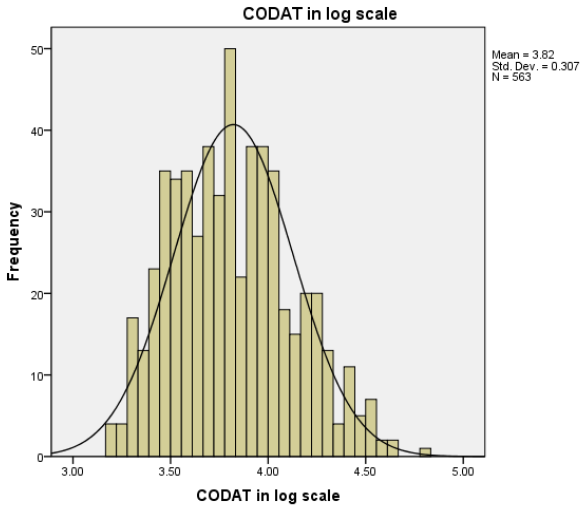
Boxplot: Overeating Scores



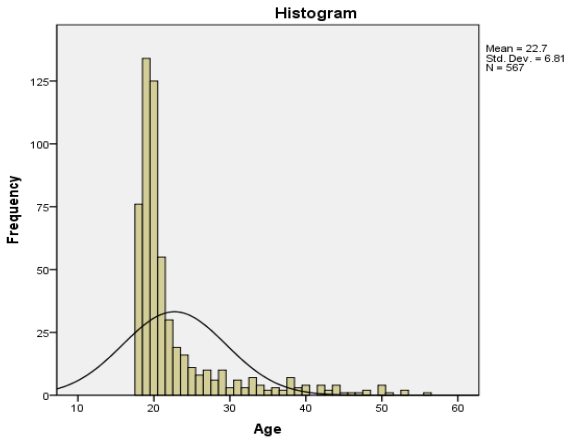
Histogram: Age (Original)

Figure 5

Figure 5. *Analysis of Normality: Boxplots/Histograms. This figure illustrates the normality of the data depicted by histograms and boxplots for the demographic variable of age and the variables in the predictive COM.*



Histogram: CODAT Scores after Log Transformation



Histogram: Age after Log Transformation

Figure 6

Figure 6. *Histograms: CODAT Scores and Age after Log Transformation. This figure illustrates the CODAT scores and age after log transformations were conducted on the data.*

The researcher conducted descriptive statistics, cross-tabulations and correlations. These were examined by Dr. Zhang and repeated. To ensure accuracy, all data used for analysis were products of Dr. Zhang's SPSS output.

RESULTS

Results

The purpose of this study was to test the Codependency-Overeating Model (COM) by examining the relationships between the variable of interest, overeating and the proposed predictor variables of codependency and the psychological problems of anxiety, depression, anger and compulsivity as well as demographic and health related variables. This chapter includes the description of the sample, descriptive statistics related to the study variables and the analysis of the research questions.

Description of the Sample

Data collection generated 602 packets with 567 participants completing all questionnaires including 372 (65.6%) women and 194 (34.2%) men. The age range for the sample was 18-56 with a mean age of 22.7 years (SD= 6.81). The majority (68.7%) of students were 18 to 21 years of age, white (64.6%), freshmen (54.7%), single (81.7%), Christian (75.3%) and without children (64.7 %). Most of the participants were employed (59.8%), with food service listed as the most frequent occupation (10.9%) and a personal income less than $10,000 (63.7 %). The majority of the participants were Mississippi residents (95.1%) and from Desoto County (49.6%). The students were from various academic majors with 16.6% pre-nursing majors, 14.3% allied health majors and 14.5% education majors. Most participants reported ACT® scores between 9 and 18 (37.2%). The majority was underweight (11.6%) or normal weight (40.6%) with 24.5% overweight and 23.3% obese. Fifteen participants were pregnant (2.6%) and 94.5% did not have an eating disorder. Twenty-seven (4.8%) participants stated they had previous hospitalizations for mental health problems. Seventy-three participants (12.9%) have a personal history of alcohol or drug abuse (past or present), 64 (11.3%) have a spouse or significant other with a present or past history of alcohol or drug abuse and 140 (24.7%) reported parents with a present or past history of alcohol or drug abuse. The complete demographic information for this sample is presented in Appendix K with health related characteristics presented in Appendix L.

Descriptive Statistics Related to the Variables in the Predictive Model

The major study variables were codependency, anxiety, depression, compulsivity, anger and overeating. Descriptive statistics for these variables are presented in this section.

Codependency. Codependency scores ranged from 25-121 with mean 47.87 (SD 15.75). Codependency score frequencies are presented in Table 9.

Table 9

Codependency Scores

Score	Frequency	Percent
Minimal	365	64.4
Mild	163	28.7
Moderate/Severe	35*	6.1

*Because each category contained few scores, they were combined

There were no significant differences when codependency was cross-tabulated with sex, age, religion, marital status, practicing of religion, major, employment status, occupation, number of children, income (personal or household), ACT® score or presence of eating disorders. Significant differences were noted when codependency was cross-tabulated with race, academic standing, hospitalization for mental health problem, and past or present alcohol/drug problem (personal, spouse/significant other and parents). Mild codependency was reported by 32.1% of the white participants compared to 21.3% of the black participants, while 7.4% whites reported moderate/severe levels of codependency compared to 3.8% of the black participants. The sophomore students also reported a higher incidence of mild codependency (32.7%) compared to the freshman students (26.1%) with 10.4% of the sophomores reporting moderate/severe levels compared to 2.3% freshman. In the participants reporting a previous hospitalization for mental health problems, 33.3% reported mild codependency compared to 29.4% by the group that had never been hospitalized. The group with previous hospitalizations reported 22.2% moderate/severe codependency levels compared to 5.3% by the group that had never been hospitalized. The participants with a past or present alcohol/drug problem for self, spouse/significant other or parents reported a greater incidence of mild and moderate/severe levels of codependency compared to the group with no past or present

problem with substance abuse. Thirty-five percent of those with a personal drug/alcohol problem reported mild codependency compared to 28.1% of those with no problem while 19.2% with a personal drug/alcohol problem reported moderate/severe codependency compared to 4.3% of those with no problem. Thirty four percent of those with a spouse or significant other drug/alcohol problem reported mild codependency compared to 28.2% of those with no problem while 15.6% with a spouse/significant other drug/alcohol problem reported moderate/severe codependency compared to 5.1% of those with no problem. Forty percent of those with a parental drug/alcohol problem reported mild codependency compared to 25.4% of those with no problem while 12.1% with a parental drug/alcohol problem reported moderate/severe codependency compared to 4.3% of those with no problem.

Anxiety, depression, compulsivity, and anger. The psychological problems of anxiety, depression, compulsivity and anger were measured with the SCL-90-R. Table 10 presents the means, SD, range and frequency for the participants' scores on anxiety, depression, compulsivity and anger.

Table 10

Anxiety, Depression, Compulsivity and Anger Scores of Participants

Variable	Range	Mean (SD)	Frequency (T-scores ≥ 63)	Percent
Anxiety	37-81	57.04 (12.70)	201	35.4
Depression	34-81	60.02 (10.87)	235	41.4
Anger	40-81	58.97 (11.68)	215	37.9
Compulsivity	37-80	62.12 (10.74)	299	52.7

When selected demographic characteristics and health related characteristics of the sample were correlated with each other and with the predictor variables of anxiety, depression, compulsivity and anger; a weak correlation was found between age and the predictor variables of anxiety, depression and compulsivity, otherwise only small, not meaningful correlations were found (see Table 11).

Table 11

Pearson Product Moment Correlations between Predictor Variables and Selected Demographic Characteristics (n=552)

Characteristic	Anxiety	Depression	Compulsivity	Anger
Age	.12*	.20**	.20**	.03
Sex	.07	.05	.10	.07
Race				
White	-.03	-.07	-.10	-.02
Black	.06	.09	.09	.06

*p<.05 **p<.001

Sex-Females were used as the reference

Race-Students with other races were used as the reference

A weak correlation was found between codependency and anxiety and between codependency and anger when correlations between the predictor variables were examined (See Table 12).

Table 12

Pearson Product Moment Correlations between Predictor Variables

	Anxiety	Depression	Compulsivity	Anger
Codependency	.12*	.07	.08	.16**

*p<.05 **p<.001

Overeating. The interpretation of the OQ began with an inspection of the Defensiveness (DEF) and Inconsistent Responding (INC) scores to assess response bias and identify instances in which the participants' responses may not have been based on the item content. The mean DEF score was 49.13 (SD =10.59). The majority of participants (474) scored < 60 (T-score) on the DEF scale (83.6%) with 73 participants (12.9%) scoring ≥ 60 (T-score) [high] and 19 participants (3.4%) ≥ 70 (T-score) [very high]. The mean INC score was 2.17 (SD 1.73) with 457 (90.3%) of the participants scoring ≤ 4. A complete listing of the DEF and INC scores is available in Appendix M.

The overeating score relates to the tendency to continue to eat even after hunger is satisfied. Raw and T-scores were entered into SPSS with T-scores categorized into Low, 41-59 (average), High and Very High. Overeating T-scores ranged from 2 to 78 with mean 48.84 (SD 10.42). Overeating was reported by 14.3% of the participants with 85.6% reporting scores indicating they were not overeaters. Overeating T-score frequencies are listed in Table 13

Table 13

Overeating T-scores

Score	Frequency	Percent
1-40 (Low)	133	23.5
41-59 (Average)	352	62.1
Total non-overeaters	485	85.6
60-69 (High)	65	11.5
70-80 (Very High)	16	2.8
Total overeaters	81	14.3

There were no significant differences when overeating was cross-tabulated with sex, race, academic standing, religion, marital status, practicing of religion, major, employment status, occupation, number of children, income (personal or household), ACT® score , hospitalization for mental health problem, surgical procedures or history or alcohol/drug problem (personal, spouse/significant other or parents) or presence of eating

disorders. Significant differences were noted when overeating was cross-tabulated with age. A greater incidence of high overeater scores was reported by the 22+ group (16.4%) compared to the 20-21 (11.2%) and the 18-19 age group (7.6%). The very high overeater scores were reported by 4.5% of the 20-21 age group, compared to 1.9% by the 18-19 age group and 2.3% by the 22+ age group. Information regarding all cross-tabulations is presented in Appendix N and O.

Testing of the COM

Related to Research Question 1, there were only small, not meaningful correlations between overeating and any of the predictor variables; therefore the proposed predictor variables did not explain the variance in the overeating scores when each predictor variable was correlated with overeating using a Pearson Product Moment correlation (See Table 14).

Table 14

Pearson Product Moment Correlations between Predictor Variables and Overeating

Predictor Variable	Overeating
Codependency	.00
Anxiety	.04
Depression	.07
Compulsivity	.03
Anger	.02

When selected demographic characteristics and health related characteristics of the sample were correlated with overeating, no meaningful correlations were found (see Table 15 and Table 16).

Table 15

Pearson Product Moment Correlations between Overeating and Selected Demographic Characteristics (n=552)

Characteristic	Overeating
Age	.04
Sex	- .06
Race	
White	- .06
Black	.06

Table 16

Pearson Product Moment Correlations between Overeating and Selected Health Related Characteristics

Characteristic	Overeating	n
Personal history with drugs/ alcohol	- .017	551
Previous hospitalizations for mental health problem	- .012	490
Medical conditions	- .014	550

Correlations were also calculated between the subscales of the CODAT and overeating with the results presented in Table 17. Small, not meaningful correlations were found between the CODAT subscales and overeating, however the CODAT subscales were found to be highly correlated.

Table 17

Pearson Product Moment Correlations between CODAT Subscales and Overeating

Subscales	Overeating	Family of origin issues	Self-worth	Hiding self	Other focus
Family of origin issues	.00				
Self worth	- .01	.45*			
Hiding self	.00	.39*	.48*		
Other focus	.03	.28*	.40*	.37*	
Medical problems	.02	.38*	.59*	.38*	.38*

** p< .001*

Sex-Females were used as the reference

Race-Students with other races were used as the reference

Related to Research Question 2, no meaningful correlations were found between the predictor variables and overeating. Therefore, neither separate regression models for any predictor variable nor the full model was appropriate to conduct. No combination of predictor variables in the model predicted overeating and path analysis did not substantiate the causal paths in the original model.

DISCUSSION

Discussion

The nursing concern that prompted this investigation was the limited evidence base to support effective nursing interventions to assist clients in issues of stress-related overeating and codependency. The purpose of this study was to test the Codependency-Overeating Model (COM) by examining the relationships between the variable of interest, overeating and the proposed predictor variables of codependency and the psychological problems of anxiety, depression, anger and compulsivity as well as demographic and health related variables. Although the results did not substantiate the predicted relationships in the model, several worthwhile findings were revealed along with implications for future research with the COM. This chapter includes an updated review of the literature, discussion of the sample, discussion of the instrumentation, discussion of the findings, strengths/limitations of the study, significance, and recommendations for future research.

Updated Review of Literature

A literature review was conducted after analysis of the data with the search results presented in Table 18. All abstracts and pertinent full-text articles from 2008 to the present were reviewed. There was a paucity of research in the codependency and overeating field. There were no pertinent studies conducted with codependency as a variable. Several interesting findings were noted in the literature. Although the debate continued in the literature, classification of overeating as a food addiction appeared to be gaining support (Bannon et. al 2009; Davis & Carter, 2009; Gold et al, 2009). Presenters at the 2007 Food Addiction Conference sponsored by Yale University suggested the inclusion of "food addiction" as a diagnostic entity in the upcoming DSM-V (McFadden, 2010). Corsica and Pelchat (2010) noted that food addiction as a viable diagnosis lacked scientific data but identified a recently developed food addiction scale that, in their opinion, holds promise in identifying food addiction. Tapper and Pothos (2010) published the development and validation of a Food Preoccupation Questionnaire they noted to be useful for exploring the relationships between food preoccupation, food processing biases and overeating. Two additional studies were found regarding eating and psychological factors. Schneider, Appelhans, Whited, Oleski and Pagoto (2010) noted anxiety to be associated with greater food intake. Brown, Schiraldi and Wrobleski (2009) observed that

disordered eaters were more likely to be female and to express depression and anxiety. Additional details regarding these two studies are included in the discussion section.

Table 18

Updated Review of Literature

Keywords	CINAHL-NWCC	Proquest-NWCC	PubMed-UMMC	CINAHL-UMMC
Overeating	55	424	89	43
Hyperphagia	72	124	36	31
Overeating + anxiety	3	8	27	5
Overeating + depression	9	8	0	12
Overeating + anger	0	3	0	0
Overeating + compulsivity	1	2	0	1
Codependency	15	22	3	5
Codependency + overeating	0	0	0	0

Discussion of the Sample and Instrumentation

Sample. The current study sample appeared to be different from the samples in the literature in regards to sample characteristics. The current study involved 567 participants, a large sample compared to similar studies in the literature. The comparative studies utilized samples sizes ranging from 18-511 with the majority considerably smaller. Since all students at NWCC must complete a behavioral science course (psychology or sociology) in order to obtain an academic or technical degree, the students enrolled in these classes were expected to be a diverse group, representative of the population of students at NWCC, but resulted in a more homogenous group than anticipated. Appendix J presents the NWCC student demographics compared with the sample demographics for the Spring 2011 semester. The sample for the current study was predominantly female (65%), white (64%), single (81.7%), age 18-21 (68.7%) with a mean age of 22.7 (SD 6.81). Comparative studies measured samples that were also predominantly female, but were usually married or in a relationship and older.

Instrumentation. Most of the studies utilized instruments different from the current study to measure codependency, anxiety, depression, compulsivity, anger and

overeating. Only the Martsolf, Sedlak and Doheny (2000) and Hinkin and Kahn (1995) studies used the same instruments as the current study to measure codependency and psychological variables. Martsolf, Sedlak and Doheny (2000) and Hughes-Hammer, Martsolf and Zeller (1998a) used the CODAT to measure codependency. Hinkin and Kahn (1995) used the CODAT to measure codependency and the original SCL-90 to measure psychological variables. The studies addressing eating issues included obesity, binge eating, purging signs, bulimia without purging, and emotional eating but not explicitly overeating.

Discussion of the Findings

Codependency. The majority (64.4%) of the participants in the present study scored minimal codependency levels, with 28.7 % scoring mild codependency and only 6.1% scoring moderate/severe levels of codependency. Martsolf, Sedlak and Doheny (2000) in their study of 307 women in a flu clinic with a mean age of 73.7 found 77% of the sample with minimal codependency, 22% with mild codependency and 1% with moderate/severe codependency. In the Martsolf, Hughes-Hammer, Estok and Zeller (1999) comparison of 149 "helping" professionals (nurses, physicians, social workers, psychologists), no participants scored moderate or severe codependency with 82% scoring minimal codependency and 18% scoring mild codependency. Hughes-Hammer, Martsolf and Zeller (1998a), in a study of women in treatment for depression with a mean age of 42, found 20% of their sample with minimal/mild codependency and 88% with moderate/severe codependency. Considering the codependency levels in the study of depressed women and the knowledge the CODAT was developed with participants from mental health settings, the low levels of codependency in the current study is not surprising. The result from the current study corroborates the findings in the literature that codependency is not a widespread problem in the general population.

In the current study, a significant difference was noted when the levels of codependency were cross tabulated with a previous or present drug/alcohol problem in self, spouse/significant other or parents. In the present study, 12.9% of the participants reported a personal history with a drug or alcohol problem, 11.3% reported a similar problem in spouse/significant other and 24.7% reported a parental problem with drugs or alcohol. In a 2010 report from the Substance Abuse and Mental Health Services

Administration, an estimated 21.5% of Americans age 18-25 reported illicit drug use, with 40.6% binge drinking and 13.6% heavy drinking (SAMHSA, 2010). Initially, 12.9% appeared to be a substantial proportion of the sample with alcohol or drug problems, however, the current sample actually reported a lower than average drinking history. The participants in the present study also reported a lower incidence of alcohol or drug abuse than the 105 depressed women in the Hughes-Hammer et al. (1998a) study. In that 1998 study, the authors reported 23% with a personal history of alcohol/drug problems, 31% with a similar history in spouse/significant other and 42% with parental history of alcohol/drug problems. As the literature indicates, individuals with a spouse, significant other or parents with drug/alcohol problems are more likely to have codependency issues, therefore, participants in relationships with an alcohol or drug abusers would be more likely to have higher codependency levels. The sample for the current study was 80.2% single, which could account for the reported low levels of codependency.

Predictor variables: codependency, anxiety, depression, compulsivity and anger. In the studies exploring codependency and the predictor variables of anxiety, depression, compulsivity and/or anger, it was reported that correlations were found between the variables that were not reflected in the current study. It is worth noting that the sample size and relationship status was different than the same aspects of the current study. In addition, different instruments from those used in the current study were used to measure the variables in most of the studies. The findings from the current study indicate a weak correlation between codependency and anxiety, and codependency and anger concurring with findings in other studies (Cullen & Carr, 1999; Fischer, Spann & Crawford, 1991; Gotham & Sher, 1996; Hinkin & Kahn, 1995). However, there was no correlation between codependency and depression, or codependency and compulsivity in this study, unlike the studies cited in Chapter 2 (Cullen & Carr, 1999; Gotham & Sher, 1996, Hinkin & Kahn , 1995; Hughes-Hammer, Martsolf & Zeller, 1998a).

Cullen and Carr (1999) noted the codependency group in their study experienced more depression and compulsivity, differing from the current study. Their sample included 289 college students in Dublin, Ireland with 75% female, 52% dating or married and mean age of 20.5. They also used instruments that were different from the current study to measure the variables. Fischer, Spann and Crawford (1991) found codependency

was related to anxiety and depression in a majority white sample of 88 male and 140 female college students described as mostly white. Instruments differing from the current study were used to measure the variables. Gotham and Sher (1996) assessed the reliability and validity of the Codependency Assessment Questionnaire in 467 freshman students. There were 246 males (53%), 221 females (47%) with a mean age of 23.5. The children of alcoholics (COAs), compared to those that were not COAs, were found to have more obsessive-compulsiveness, anxiety, hostility and depression. These were the four psychological problems measured in the current study however; they were measured with different instruments. The current study found a weak correlation between codependency and anxiety, and codependency and anger but no meaningful correlation between codependency and depression or codependency and compulsivity. Gotham and Sher (1996) as well as Cullen and Carr (1999) report mean ages similar to the current study; however a greater majority of the individuals in the studies were in a relationship.

Hinkin and Kahn (1995) studied 97 women, the wives and adult children of alcoholics. The spouses of alcoholics scored higher on the original SCL-90 dimensions of hostility (anger), depression, obsessive compulsive and anxiety than the spouses of non-alcoholics. The Hinkin and Kahn (1995) study sample was predominantly white (46%), married or in a common-law relationship, with a mean age of 45.2. Hughes-Hammer, Martsolf and Zeller (1998a) studied 105 depressed, predominantly white (90%) women to examine the relationship between codependency and depression. Codependency was correlated with depression with the prevalence of moderate or severe codependency in severe depression (88%) compared to 20% in minimal or mild codependency. The mean age in these studies was higher than the current study and the participants were also in a relationship.

Overeating and anxiety, depression, compulsivity and anger. The studies in the review of literature noted correlations between eating and emotions, including the psychological variables of anxiety, depression, compulsivity and/or anger. However, these studies differed in sample size, mean age or other sample characteristics. The studies cited in the review of literature also did not measure overeating or the predictor variables with the instruments used in the current study. Although the COM was grounded in the literature, only small, not meaningful correlations between overeating

and the predictor variables of anxiety, depression, compulsivity and anger were found; which is contrary to the evidence in the literature reviewed as part of this study that negative emotions, particularly those chosen for variables in this study, contributed to eating (Arnow, Kenardy & Agras, 1992; Ruderman, 1983; Slochower, Kaplan & Mann, 1981; Stickney, Miltenberger & Wolff, 1999). Arnow, Kenardy and Agras (1995) noted a correlation between overeating and three of the predictor variables: anxiety (r= .78), depression (r= .72) and anger (r= .78). Their sample was 47 obese females in treatment for binge eating, and weight loss with a mean age of 44.9. Ruderman (1983) noted the level of anxiety was an important consideration in the 83 undergraduate females surveyed since the participants ate more when mildly anxious than when relaxed or highly anxious. The mean age and relationship status was not reported for the participants.

Two studies were found in the recent review of literature with correlations between eating and the psychological problems of anxiety, depression, and anger. Brown, Schiraldi and Wrobleski (2009) investigated the effect of emotional and external cue eating on obesity in 483 university students. They noted that disordered eaters (individuals with anorexia, bulimia or purging signs) reported worse mental health and more emotional eating. The disordered eaters in their study were more likely to be female and to express depressive and anxiety symptoms. Their sample included 55% female participants with the mean age not reported. The study utilized different instruments from the current study for anxiety (Speilberger State/Trait Anxiety Inventory) and depression (Zung Self Rated Depression Scale) and the Dutch Eating Behavior Questionnaire (DEBQ) to measure overeating triggered by negative emotions (Brown, Schiraldi, & Wrobleski, 2009).

Schneider, Appelhans, Whited, Oleski and Pagoto (2010) observed trait anxiety was associated with greater food intake following an anxiety mood indication for the obese, but not lean subjects in their study. Their sample was 74% female with a mean age of 34.6 and included 60 subjects on a medical center campus. However, trait anger did not increase vulnerability to emotional eating. The researchers in this study used the Speilberger State/Trait Anger Scale, Profile of Mood States, with hunger measured on a 0-10 scale and food intake quantitatively measured (Schneider, Appelhans, Whited, Oleski, & Pagoto, 2010).

Overeating and codependency. Codependency did not predict overeating in the current study. The association between codependency and eating issues was noted in the literature, although overeating was not measured with an instrument developed specifically to measure this concept in these studies. The studies in the literature also differed from the current study in sample size, ethnicity, mean age, relationship status or weight status. Meyer (1997) investigated the similarities between excessive codependency and eating disorders in 95 predominantly white (80%) females with a mean age of 20.3 and found those suffering from codependency were more likely to have experienced a chronic stressful event and exhibited more eating disorder symptoms (not overeating) than those without codependency issues. In 1998, Meyer and Russell published additional findings from the Meyer (1997) study. Meyer and Russell (1998) noted that those with codependency issues differed significantly on 10 of the 11 Eating Disorder Inventory-2 (EDI-2) subscales. The EDI-2 measured eating disorder symptoms, not specifically overeating. Allison (2005) measured the influences of codependency and binge eating on BMI in 511 predominantly white (63%), married (64%), and overweight (52%) female nurses with a mean age of 45.

Strengths and Limitations of the Study

Limitations are theoretical and methodological circumstances, foreseen and unanticipated, inherent in quantitative research that may limit generalizability and threaten the validity of a study (Burns & Grove, 2005). The following limitations of this study were identified prior to data collection: effect of extraneous variables, testing effects, instrumentation and random measurement errors. These threats were minimized or eliminated with a careful research design, sampling plan and strong recruitment strategy to control the extraneous variables and secure a representative sample. The data collection procedure for randomization of the questionnaires outlined in Chapter 3 minimized the possibility of a testing effect. The threat to instrument validity including the accuracy of self-reported data was minimized by the use of instruments reported to be valid and reliable and the assurance to participants that responses were anonymous and confidential.

Random measurement errors include the participants accidentally marking the wrong column or the researcher accidentally entering wrong codes during data entry.

Measurement errors by the participants were minimized with careful instructions to the participants and the availability of the researcher to answer questions. Hand scoring of the OQ and SCL-90-R was labor intensive and could have been the source of scoring errors. Computer scoring was available for the SCL-90-R and the OQ, however the cost was too great for a study with this sample size. The researcher chose reliable individuals to hand-score the questionnaires. The scoring assistants were given scoring manuals, training and the researcher was available to answer questions as needed. The audit results were evidence that scoring accuracy was above average. Considering the vast amount of data involved in this study, careful consideration was given to the possible random errors that could be made during data entry. After the OQ and SCL-90-R questionnaires were scored, a code was entered into a total of 67,035 cells in the Excel spreadsheets. The researcher was the only individual who entered the data with the spreadsheets checked routinely for internal data consistency. If inconsistencies were found, the original questionnaires were checked to confirm the accuracy of data entry. The use of a codebook and working closely with an experienced statistician also maintained consistency in the data collection and data entry plan. The use of one individual (the researcher) explaining the study, collecting and entering the data along with carefully trained scoring assistants also protected the integrity of the study. The audit results are also evidence that the data collection plan and data entry quality control program was successful.

Due to the methodological limitations of a single college setting for the study, the findings are generalizable only to the students at NWCC. Although the current study utilized a healthy, non-patient sample and in hindsight, a different sample with higher codependency levels might have resulted in the substantiation of the model, this sample was chosen based on accessibility and feasibility. In human research, the feasibility of the study must be considered which includes the identification of individuals with the desired characteristics that are available and willing to participate. In addition, the cost of sampling at one college maximized the resources that were spent when compared with the cost of mailing questionnaires that usually have poor response rates (Polit & Beck, 2004). The response rate for the study was >50%, demonstrating good representativeness of the sample. However, there were fewer students from the online classes included in the

sample. Each instructor for the online courses scheduled examinations differently. Several instructors did not proctor their own examinations, allowing the students to individually schedule with the eLearning department with as little as 12 hours' notice. Even with Blackboard notices and the opportunity to complete the questionnaires before or after their examination, few online students actually took the time to complete them. The response rate was also less in the classes in which the researcher was not allowed class time for the students to complete the questionnaires.

Other limitations not noted prior to data collection included the setting interaction, selection bias, response bias and instrumentation issues (testing fatigue, instrument format, instrument clarity and instrument validity). The interaction of the physical location and condition of the data collection setting was not completely considered during the proposal phase. Completion of the questionnaires during class time increased the response rate, but perhaps the student only participated for the incentive or feared their instructor for the course would know if they chose not to participate. It is unknown whether the students were serious or honest with their answers. However, as noted in Chapter 4, the DEF and INC scores indicated the majority of answers were based on item content with low response bias noted. One student made a design on the answer sheet, while one marked the option 3 on all answers. Several instructors wanted to give extra credit for participation but the researcher informed them that would not be appropriate. To minimize the threat of a setting interaction, the potential participants were given instructions regarding confidentiality, the instructor was not allowed to remain in the room and the researcher held the only key to the data collection boxes. To minimize the possibility of coercion and misinformation, the instructors were also asked not to discuss the study prior to the day of data collection.

Due to the age of the sample (M=22.7) selection bias must be considered as a possible limitation. The participants in many of the studies in the literature were college students; therefore this was not considered as a potential limitation prior to conducting the study. The threat of social desirability response bias (answers based on prevailing social values) was minimized with the assurance of anonymity and confidentiality along with the use of reliable and valid instruments.

Testing fatigue, instrument format and instrument clarity were not considered prior to the data collection phase of this study. The Information Sheet was piloted with one class; however, the entire set of questionnaires was not piloted with students. The researcher completed each questionnaire in preparation to answer questions from participants and for scoring purposes. The published information regarding the instruments indicated that the time for completion for the OQ, SCL-90-R and the CODAT was 47-50 minutes. The actual time to complete the instruments by the researcher and the majority of the students was 25-30 minutes. The Monday-Wednesday- Friday classes are 50 minutes with the Tuesday-Thursday classes 75 minutes and the once/week classes 2.5 hours. It is possible that some students felt rushed to complete the instruments and did not give due consideration to their answers. Instrument format and instrument clarity can influence the measurement. The instruments used in this study utilized different methods of answering the questions, including circling, bubbling, filling in blanks and check marks. Some forms had perforations, flaps, as well as front and back answers making the process somewhat more difficult for some students. The researcher was available in the classrooms to assist students; however those students who completed the questionnaires at home did not have this assistance. The response rate for the study was > 50%, therefore demonstrated good representativeness of the sample. However, there were fewer students from the online classes included in the sample. Each instructor for the online courses scheduled examinations differently. Several instructors did not proctor their own examinations, allowing the students to individually schedule with the eLearning department with as little as 12 hours' notice. Even with Blackboard notices and the opportunity to complete the questionnaires before or after their examination, few students actually took the time to complete them. The response rate was also less in the classes in which the researcher was not allowed class time for the students to complete the questionnaires.

The validity and reliability of the instruments was evaluated prior to the study and is presented in Chapter 3. Each instrument was selected, in part due to its documented high reliability and validity. However, the validity or the degree to which the instrument measures what it is supposed to measure is difficult to establish. No equations can easily be applied to the scores to estimate how accurately a scale measures a variable (Polit &

Beck, 2004). Codependency and overeating are difficult constructs to measure. Roman and Reay (2009) assert that no single theory adequately accounts for the development or treatment of overeating as an eating disorder. Codependency continues to be criticized in the literature as a weak theory lacking an operational definition. Perhaps the instruments did not measure overeating or codependency, but a different dimension of a third concept and blurred the meaningful difference in the overeating and codependency scores. In the current study, 48% of the participants were classified by their self-report as overweight or obese, however, only 15% scored as overeaters. Although the INC and DEF scores on the OQ indicated the participants answered based on item content with low response bias, the validity of the instrument to measure overeating is called into question.

Significance of the Study

In spite of the limitations of the study and the inability to substantiate the predicted relationships in the model, this was the first attempt to explore these variables in a single study. Although the predictive relationships were not verified in the model, the COM can continue to be used as a base for a program of nursing research, to guide future studies with different samples, utilizing different instruments, designs, and methodology. This study successfully utilized a research design with four instruments for a large sample, producing an excellent response rate and data entry quality control results. In addition, several important ways to minimize limitations in future studies were identified. Optimistically, the development and testing of the COM was the beginning step in pursuing a solid understanding of overeating and codependency and a catalyst for worthwhile future research.

Recommendations for Future Research

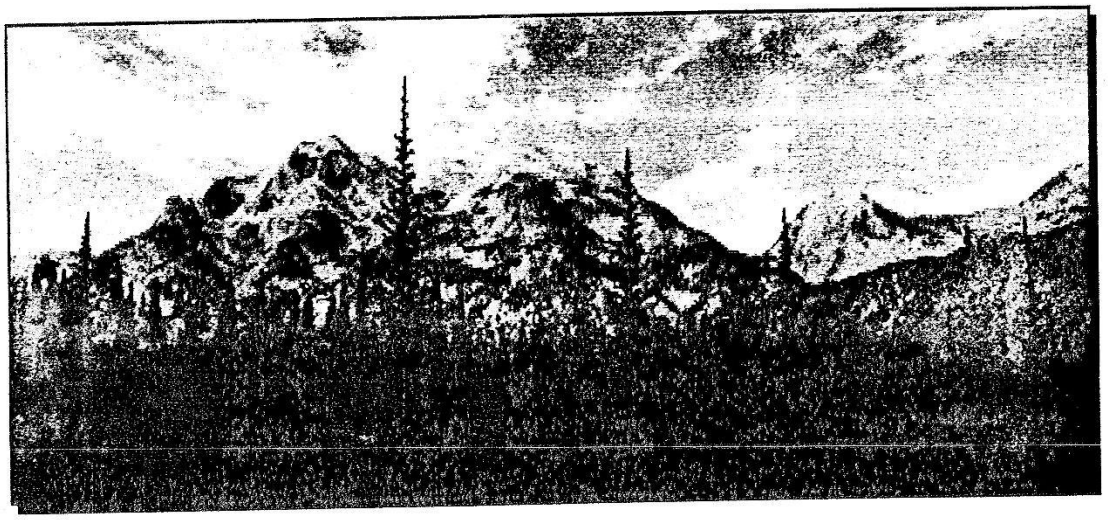
This study demonstrated an obvious need for further research. Qualitative inquiries to describe, explore and explain the phenomena of overeating are appropriate; as well as other studies to include those to develop valid and reliable instruments to measure overeating. Before replicating the current study, the theoretical and statistical links between the variable relationships in the model must be reassessed. In light of the findings from the current study, changes may be needed in the proposed predictor variables. In replicating the current study, several aspects related to sample characteristics and methodology need to be reexamined. This study could be replicated with a large

sample, like this study, but more diverse with older participants with more life experiences who are more likely to have mild or moderate/severe codependency levels, perhaps a sample that is female, white, in a relationship or married, therefore more likely to have higher codependency levels. In addition, recruiting participants from addiction treatment centers, eating disorder (overeating) clinics or psychology practices that treat codependency or eating disorders could enhance the sample characteristics. The recommendations for methodology changes include utilizing different instruments to measure overeating and allowing more time to complete the instruments.

APPENDIX A

CODAT

CODAT



172-69-3

CODAT

Directions: This instrument is called the CODAT. It is designed to measure different kinds of problems people experience in their lives. On the answer sheet, you'll notice that 5 stands for most of the time, and 1 for rarely. Read each statement and circle whichever of the five responses describes you best for each statement. Notice that responses 2, 3, and 4, also have descriptive labels. Please be sure to respond to all 25 items, even if it is difficult to do so. Circle the most appropriate response.

Age _____

Sex: _____ Male _____ Female Race _____

Religion: _____ Practicing _____ Non-Practicing _____

Marital Status: _____Single _____Married _____Separated

_____Divorced _____Widowed

Number of Children _____ Level of Education _____

Occupation: _____ _____

Presently Employed: _____Yes _____No

Any Previous Hospitalizations for Mental Health Problems: _____

Number of Previous Hospitalizations for Mental Health Problems: _____

Reasons for Hospitalization and/or Name or Condition(s): _____

_____

Do you have, in the present or past, a problem with the use of drugs or alcohol?

_____Yes _____No

Does your spouse or significant other have, in the present or past, a problem with the use of drugs or alcohol?

_____Yes _____No

Do your parents have, in the present or past, a problem with the use of drugs or alcohol?

_____Yes _____No

	Rarely or Never 1	Occasionally 2	Often 3	Usually 4	Most of the Time 5				
1.	I feel compelled or forced to help other people solve their problems (i.e. offering unwanted advice).				1	2	3	4	5
2.	I try to control events and how other people should behave.				1	2	3	4	5
3.	I become afraid to let other people be who they are and allow events to happen naturally.				1	2	3	4	5
4.	I feel ashamed of who I am.				1	2	3	4	5
5.	I try to control events and people through helplessness, guilt, coercion, threats, advice-giving, manipulation, or domination.				1	2	3	4	5
6.	I worry about having stomach, liver, bowel or bladder problems.				1	2	3	4	5
7.	I am preoccupied with the idea that my body is failing me.				1	2	3	4	5
8.	I feel compelled or forced to help other people solve their problems (i.e. offering advice)				1	2	3	4	5
9.	I feel that my general health is poor compared with my family and friends.				1	2	3	4	5
10.	I put on a happy face when I am really sad or angry.				1	2	3	4	5
11.	I keep my feelings to myself and put up a good front.				1	2	3	4	5
12.	I feel ill and run down.				1	2	3	4	5
13.	I hide myself so that no one really knows me.				1	2	3	4	5
14.	I keep my emotions under tight control.				1	2	3	4	5
15.	When I was growing up, my family didn't talk openly about problems.				1	2	3	4	5
16.	I have stomach, bladder or bowel trouble.				1	2	3	4	5
17.	I pick on myself for everything, including the way I think, feel, look, act and behave.				1	2	3	4	5
18.	I push painful thoughts and feelings out of my awareness.				1	2	3	4	5
19.	I grew up in a family that was troubled, unfeeling, chemically dependent or overwrought with problems.				1	2	3	4	5
20.	My family expressed feelings and affection openly when I was growing up.				1	2	3	4	5
21.	I blame myself for everything too much.				1	2	3	4	5
22.	I am unhappy now about the way my family coped with problems when I was growing up.				1	2	3	4	5
23.	I am unhappy about the way my family communicated when I was growing up.				1	2	3	4	5
24.	I feel humiliated or embarrassed.				1	2	3	4	5
25.	I hate myself.				1	2	3	4	5

APPENDIX B

INFORMATION SHEET

INFORMATION SHEET

Code number_____

This is an entirely confidential form. Your paperwork will contain only a code number. Please provide the following background information. This sheet will be used to provide demographic data to describe the sample and to obtain information that can affect eating behavior and weight.

1. Please check whether you are a freshman_____ or sophomore____?

2. What is your personal annual income? (please circle answer)

0-No personal income

Less than $10,000 /year

$10,000-$14,999/year

$15,000 - $19,999/year

$20,000 - $24,999/year

$25,000 - $29,999/year

$30,000 - $34,999/year

$35,000 - $39,999/year

$40,000 - $44,999/year

$45,000 - $49,999/year

$50,000 - $59,999/year

$60,000 - $99,999/year

$100,000 - $124,999/year

$125,000 - $149,999/year

$150,000 - $199,999/year

$200,000 or more/year

3. What is the annual income for your parents or the household you grew up in? (please circle answer)

Less than $10,000 /year

$10,000-$14,999/year

$15,000 - $19,999/year

$20,000 - $24,999/year

$25,000 - $29,999/year

$30,000 - $34,999/year

$35,000 - $39,999/year

$40,000 - $44,999/year

$45,000 - $49,999/year

$50,000 - $59,999/year

$60,000 - $99,999/year

$100,000 - $124,999/year

$125,000 - $149,999/year

$150,000 - $199,999/year

$200,000 or more/year

Unknown/I do not know

4. Are you currently pregnant? _____Yes _____No

5. Have you ever had issues with anorexia, bulimia or other eating disorder?

_____Yes_____No

If yes, please explain_____

_____

6. Circle if you have had the following surgical procedures:

Lap band

Gastric by-pass

Any surgery that decreased stomach size (Describe)_____

7. Circle if you are currently being treated for the following:

Diabetes

Hypoglycemia

Cancer

Heart disease

Thyroid problems

Gastroparesis

Any condition that affects your appetite, absorption or digestion of food

(Describe)_____

8. Current major:_____

9. Residence: County_____State_____

10. Are you enrolled in at least one on-line class? _____Yes _____No

11. What is your composite ACT score? _____

APPENDIX C

OVEREATING QUESTIONAIRE

Overeating Questionnaire

AutoScore™ Form

William E. O'Donnell, Ph.D., M.P.H.,
and W. L. Warren, Ph.D.

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Name or ID number: 172-69-3

Today's Date: _____ Age: _____

Gender: ☐ Female ☐ Male

Education (years completed):

☐ <12 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ >16

Race/Ethnicity:
- ☐ American Indian/Alaska Native
- ☐ Asian
- ☐ Black/African American
- ☐ Hispanic/Latino
- ☐ Native Hawaiian/Pacific Islander
- ☐ White
- ☐ Other

continue on next page...

PART I

Height: ____ ft. _____ in. Weight: _____ lbs.

Highest adult weight (excluding pregnancy): _____ lbs.

Lowest adult weight: _____ lbs.

How much would you like to weigh? _____ lbs.

How old were you when you began to experience weight concerns? _____ years old

1. Do you have an eating problem? ☐ No ☐ Yes
2. Are you dieting now? ☐ No ☐ Yes
3. Have you had a problem with alcohol or drugs? ☐ No ☐ Yes
4. Do you have serious health problems? ☐ No ☐ Yes
5. Do you believe you will weigh less in 6 months than you do now? ☐ No ☐ Yes
6. How accurate are the height and weight estimates you gave above?
   - ☐ Not very accurate
   - ☐ A little accurate
   - ☐ Quite accurate
   - ☐ Extremely accurate
7. How overweight do you think you are?
   - ☐ Very underweight
   - ☐ Underweight
   - ☐ Normal weight
   - ☐ Overweight
   - ☐ Very overweight
8. How would most other people see you?
   - ☐ Very underweight
   - ☐ Underweight
   - ☐ Normal weight
   - ☐ Overweight
   - ☐ Very overweight
9. What is the longest you have ever been at your ideal weight?
   - ☐ Less than 1 month
   - ☐ 1-3 months
   - ☐ 4-6 months
   - ☐ 6-12 months
   - ☐ More than 12 months

Now please complete Part II of the AutoScore™ Form.

PART II

Directions

Here is a list of statements about things that people sometimes do and about how they may feel. Read each statement carefully and ask yourself how much you agree with it. Then circle the number in the right column that shows how much you agree with that statement. Circle only one response for each statement, giving your best answer. Do not spend a great deal of time on any one statement.

Please press hard when marking responses.

DO YOU AGREE WITH THESE STATEMENTS?	Not at all	A little bit	Moderately	Quite a bit	Extremely
1. I always eat too much.	0	1	2	3	4
2. I weigh too much because other people in my family weigh too much.	0	1	2	3	4
3. I can't say "No" to food at parties.	0	1	2	3	4
4. If there is food left after a meal, I finish it rather than put it away.	0	1	2	3	4
5. At times I almost starve myself.	0	1	2	3	4
6. I am careful about what I eat.	0	1	2	3	4
7. I like the shape of my body.	0	1	2	3	4
8. I feel I should always eat everything on my plate.	0	1	2	3	4
9. I have strong cravings for food.	0	1	2	3	4
10. I often feel sad and blue.	0	1	2	3	4
11. I eat a balanced diet.	0	1	2	3	4
12. I am always in a good mood.	0	1	2	3	4
13. I have gone on an eating binge.	0	1	2	3	4
14. I feel uneasy in social settings.	0	1	2	3	4
15. I want to eat when I feel sad.	0	1	2	3	4
16. I eat to take my mind off my problems.	0	1	2	3	4
17. I always make good decisions.	0	1	2	3	4
18. I want to get help for my weight problems.	0	1	2	3	4
19. I eat to make myself feel better when I have been upset.	0	1	2	3	4
20. I feel troubled about my future.	0	1	2	3	4
21. I am working on a weight-loss goal that I would like to reach in the next 6 months.	0	1	2	3	4
22. My body feels more relaxed when I eat.	0	1	2	3	4
23. I am proud of the way I look.	0	1	2	3	4
24. I am shy.	0	1	2	3	4
25. I exercise more than I should so that I can lose weight.	0	1	2	3	4
26. I will exercise if that will help me to lose weight.	0	1	2	3	4
27. I tend to worry all the time.	0	1	2	3	4
28. When I crave a certain food, I go out of my way to get it.	0	1	2	3	4
29. I often feel afraid.	0	1	2	3	4
30. I weigh too much because of the way my body works.	0	1	2	3	4
31. I am always happy.	0	1	2	3	4
32. I weigh too much because no one gives me encouragement.	0	1	2	3	4
33. Other people like the way I look.	0	1	2	3	4
34. I will do what a doctor tells me in order to lose weight.	0	1	2	3	4
35. I avoid fattening foods.	0	1	2	3	4
36. When I'm hungry, I fantasize about my favorite food.	0	1	2	3	4
37. Eating makes me feel good.	0	1	2	3	4
38. I will attend support groups if that will help me to lose weight.	0	1	2	3	4

continue on back page...

Please press hard when marking responses.

DO YOU AGREE WITH THESE STATEMENTS?	Not at all	A little bit	Moderately	Quite a bit	Extremely
39. I exercise regularly to control my weight.	0	1	2	3	4
40. Some days I eat nothing.	0	1	2	3	4
41. I feel very upset when I gain one or two pounds.	0	1	2	3	4
42. My life is full of stress.	0	1	2	3	4
43. I always do the right thing.	0	1	2	3	4
44. I always worry about gaining weight.	0	1	2	3	4
45. I often feel tense.	0	1	2	3	4
46. I avoid getting close to another person.	0	1	2	3	4
47. I respect myself more when I am thin.	0	1	2	3	4
48. I always pay attention.	0	1	2	3	4
49. I often feel lonely.	0	1	2	3	4
50. I get a lot of exercise.	0	1	2	3	4
51. I feel calm after I have eaten.	0	1	2	3	4
52. I feel uncomfortable around people.	0	1	2	3	4
53. I hide the fact that I eat too much from other people.	0	1	2	3	4
54. I really want to lose weight.	0	1	2	3	4
55. The people in my life add to my weight problem.	0	1	2	3	4
56. I crave certain foods.	0	1	2	3	4
57. My busy schedule keeps me from dieting.	0	1	2	3	4
58. People in my life who are important to me encourage me to overeat.	0	1	2	3	4
59. I am better looking than most people.	0	1	2	3	4
60. When I am planning to have an especially good meal, I picture it in my mind beforehand.	0	1	2	3	4
61. I exercise every day, even when I'm tired.	0	1	2	3	4
62. I always tell the truth.	0	1	2	3	4
63. I am always dieting.	0	1	2	3	4
64. I avoid parties and social gatherings.	0	1	2	3	4
65. I weigh too much because I am short.	0	1	2	3	4
66. I will change the way I live so that I can lose weight.	0	1	2	3	4
67. I feel depressed most of the time.	0	1	2	3	4
68. I have a hard time getting close to people.	0	1	2	3	4
69. I stuff myself when I eat.	0	1	2	3	4
70. I like my body.	0	1	2	3	4
71. I find it hard to talk to people.	0	1	2	3	4
72. I have good health habits.	0	1	2	3	4
73. Looking at ads on TV or in magazines makes me crave certain foods.	0	1	2	3	4
74. I weigh too much because of health problems.	0	1	2	3	4
75. I have a sexy body.	0	1	2	3	4
76. Everybody likes me.	0	1	2	3	4
77. I count calories when I eat.	0	1	2	3	4
78. I have trouble controlling how much I eat.	0	1	2	3	4
79. I feel more friendly after I have eaten.	0	1	2	3	4
80. I will eat a balanced diet so that I can lose weight.	0	1	2	3	4

APPENDIX D

SCL-90-R

172-69-3

SCL-90-R®
Symptom Checklist-90-R

Leonard R. Derogatis, PhD

Q Local™

ADMINISTRATOR:

BE SURE THE DEMOGRAPHIC INFORMATION ON PAGE 9 IS COMPLETED.

AFTER THE QUESTIONNAIRE IS COMPLETED, DETACH PAGE 9 BY CAREFULLY TEARING ALONG THE PERFORATED LINE. THEN DISCARD PAGES 1 THROUGH 8 AS YOU WOULD OTHER CONFIDENTIAL DOCUMENTS.

PEARSON

PsychCorp

Product Number 51417

INSTRUCTIONS

The SCL-90-R consists of a list of problems people sometimes have. Read each one carefully and fill in the circle that best describes HOW MUCH THAT PROBLEM HAS DISTRESSED OR BOTHERED YOU DURING THE PAST 7 DAYS INCLUDING TODAY. Blacken the circle for only one number for each problem. Do not skip any items. If you change your mind, erase your first mark carefully and then fill in your new choice. Read the example before beginning. If you have any questions, please ask them now.

EXAMPLE

0 = Not at all 1 = A little bit 2 = Moderately 3 = Quite a bit 4 = Extremely

HOW MUCH WERE YOU DISTRESSED BY:

Body aches ..... ⓪ ① ② ● ④

PEARSON

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0 = Not at all 1 = A little bit 2 = Moderately 3 = Quite a bit 4 = Extremely

HOW MUCH WERE YOU DISTRESSED BY:

1. Headaches
2. Nervousness or shakiness inside
3. Repeated unpleasant thoughts that won't leave your mind
4. Faintness or dizziness
5. Loss of sexual interest or pleasure
6. Feeling critical of others
7. The idea that someone else can control your thoughts
8. Feeling others are to blame for most of your troubles.
9. Trouble remembering things
10. Worried about sloppiness or carelessness
11. Feeling easily annoyed or irritated
12. Pains in heart or chest
13. Feeling afraid in open spaces or on the streets
14. Feeling low in energy or slowed down
15. Thoughts of ending your life
16. Hearing voices that other people do not hear
17. Trembling
18. Feeling that most people cannot be trusted
19. Poor appetite
20. Crying easily
21. Feeling shy or uneasy with the opposite sex
22. Feelings of being trapped or caught
23. Suddenly scared for no reason
24. Temper outbursts that you could not control
25. Feeling afraid to go out of your house alone.
26. Blaming yourself for things
27. Pains in lower back
28. Feeling blocked in getting things done
29. Feeling lonely
30. Feeling blue

Go on to the next page

0 = Not at all 1 = A little bit 2 = Moderately 3 = Quite a bit 4 = Extremely

HOW MUCH WERE YOU DISTRESSED BY:

31. Worrying too much about things
32. Feeling no interest in things
33. Feeling fearful
34. Your feelings being easily hurt
35. Other people being aware of your private thoughts
36. Feeling others do not understand you or are unsympathetic
37. Feeling that people are unfriendly or dislike you.
38. Having to do things very slowly to insure correctness
39. Heart pounding or racing.
40. Nausea or upset stomach
41. Feeling inferior to others
42. Soreness of your muscles
43. Feeling that you are watched or talked about by others
44. Trouble falling asleep.
45. Having to check and double-check what you do.
46. Difficulty making decisions
47. Feeling afraid to travel on buses, subways, or trains
48. Trouble getting your breath
49. Hot or cold spells.
50. Having to avoid certain things, places, or activities because they frighten you
51. Your mind going blank.
52. Numbness or tingling in parts of your body
53. A lump in your throat.
54. Feeling hopeless about the future.
55. Trouble concentrating
56. Feeling weak in parts of your body
57. Feeling tense or keyed up.
58. Heavy feelings in your arms or legs
59. Thoughts of death or dying.
60. Overeating.

Go on to the next page

0 = Not at all 1 = A little bit 2 = Moderately 3 = Quite a bit 4 = Extremely

HOW MUCH WERE YOU DISTRESSED BY:

61. Feeling uneasy when people are watching or talking about you
62. Having thoughts that are not your own
63. Having urges to beat, injure, or harm someone
64. Awakening in the early morning
65. Having to repeat the same actions such as touching, counting, or washing.
66. Sleep that is restless or disturbed
67. Having urges to break or smash things
68. Having ideas or beliefs that others do not share
69. Feeling very self-conscious with others
70. Feeling uneasy in crowds, such as shopping or at a movie
71. Feeling everything is an effort.
72. Spells of terror or panic
73. Feeling uncomfortable about eating or drinking in public
74. Getting into frequent arguments
75. Feeling nervous when you are left alone
76. Others not giving you proper credit for your achievements.
77. Feeling lonely even when you are with people
78. Feeling so restless you couldn't sit still
79. Feelings of worthlessness
80. The feeling that something bad is going to happen to you
81. Shouting or throwing things.
82. Feeling afraid you will faint in public
83. Feeling that people will take advantage of you if you let them
84. Having thoughts about sex that bother you a lot.
85. The idea that you should be punished for your sins
86. Thoughts and images of a frightening nature
87. The idea that something serious is wrong with your body
88. Never feeling close to another person.
89. Feelings of guilt
90. The idea that something is wrong with your mind.

Turn the page and follow the directions to complete the additional information.

SCL-90-R®
Symptom Checklist-90-R

Leonard R. Derogatis, PhD

Q Local™

ADMINISTRATOR:

AFTER THE QUESTIONNAIRE IS COMPLETED, DETACH THIS PAGE BY CAREFULLY TEARING ALONG THE PERFORATED LINE. THEN DISCARD PAGES 1 THROUGH 8 AS YOU WOULD OTHER CONFIDENTIAL DOCUMENTS.

NAME (Optional)

DIRECTIONS

1. Write your identification number in the box below. Then find the circle below each space that has the same number and blacken it. In a similar way, complete the Birth Date and Test Date boxes.
2. Blacken the circle for male or female.

IDENTIFICATION NUMBER

BIRTH DATE
MONTH | DAY | YEAR

TEST DATE
MONTH | DAY | YEAR

GENDER
(1) Male
(2) Female

FOR OFFICE USE ONLY

Choose the norm group to be plotted on the profile graph:

(1) Nonpatient (adult or adolescent)
(2) Adult psychiatric outpatient
(3) Adult psychiatric inpatient

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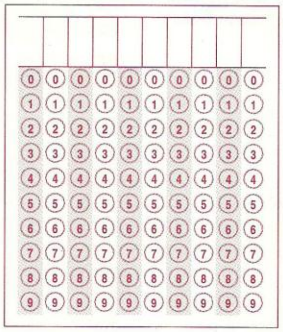
Product Number 51417

61	31	1
62	32	2
63	33	3
64	34	4
65	35	5
66	36	6
67	37	7
68	38	8
69	39	9
70	40	10
71	41	11
72	42	12
73	43	13
74	44	14
75	45	15
76	46	16
77	47	17
78	48	18
79	49	19
80	50	20
81	51	21
82	52	22
83	53	23
84	54	24
85	55	25
86	56	26
87	57	27
88	58	28
89	59	29
90	60	30

FOR OFFICE USE ONLY

Custom 1 (optional)



Custom 2 (optional)

Custom 3 (optional)

Pearson 05/10 280880-2 321

PLEASE DO NOT WRITE IN THIS AREA

187071

APPENDIX E

COVER LETTER

School of Nursing
The University of Mississippi Medical Center

Office of Doctoral Studies

2500 North State Street
Jackson, Mississippi 39216-4505
(601) 984-6221

Dear Prospective Study Participant,

I am a PhD nursing student under the direction of Dr. Barbara Boss in the School of Nursing at the University of Mississippi Medical Center (UMMC) in Jackson, MS. This study has been approved by the Institutional Review Board at UMMC. I am conducting a research study to look at overeating, emotions and relationships.

You are being invited to participate in this study because the information you supply will provide the undergraduate college student's perceptions of overeating, emotions and relationships. If you agree to participate, you will complete four questionnaires and place them back into the envelope. If you cannot complete them during class, you may complete them at another time and drop them into the box provided within two weeks. Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty and it will not affect your grade. If you decide not to participate, please drop the envelope into the box with the questionnaires not completed. The results of the research study may be published, but your name will not be used. A drawing for a $100 Walmart gift card will be held after all questionnaires are collected. One name will be drawn from each campus with online students placed in the Oxford campus for the drawing. If you choose to participate in the drawing, complete the Contact Information Sheet in the envelope. The Contact Information Sheet will be immediately removed by the researcher from the envelopes and held in a separate envelop, therefore your name can not be associated with the answers on your questionnaires. After the drawing, the contact information will be destroyed. The results of this study will be shared with you, the participants, in a study summary sent to your instructor. The results of the research study will be published in my dissertation and possibly in research journals, however no individual information will be used.

If you have any questions concerning the research study, please call me, Denise Bynum, at 662-292-2992 or email dbynum@umc.edu or Dr. Barbara Boss, at 601-984-6216 (email: bboss@umc.edu).

Return of the questionnaires will be considered your consent to participate. Thank you.

Sincerely,
Denise Bynum, MSN, RN
Denise Bynum, MSN, RN
Doctoral Candidate

APPENDIX F

NWCC PERMISSION

NORTHWEST MISSISSIPPI COMMUNITY COLLEGE
Senatobia, Mississippi 38668

Office of the President

February 5, 2010

Denise Bynum, MSN, RN
Ph.D. Candidate
University of Mississippi Medical Center
School of Nursing

Dear Denise:

Permission **is** granted for you to conduct your dissertation study – The Testing and Development of the Codependency – Overeating Model.

Permission is also granted for you to obtain any **necessary** student or class information in conducting your study.

You may proceed with your study plans when approved by the University of Mississippi Institutional Review Board.

Best wishes for a successful and meaningful endeavor.

Most Sincerely,

Dr. Gary Lee Spears
President

ca

APPENDIX G

IRB APPROVAL

UNIVERSITY OF MISSISSIPPI MEDICAL CENTER
2500 North State Street
Jackson, Mississippi 39216-4505

Institutional Review Board
Telephone (601) 984-2815
Facsimile (601) 984-2961

DHHS FWA #00003630
IORG #0000043
IRB 1 Registration #00000061
IRB 2 Registration #00005033

Approval Notice
Amendment

January 31, 2011

Barbara Boss, RN, PhD, CFNP, CANP
School of Nursing
University Of Mississippi Medical Center
2500 North State Street
Jackson, MS 39216-4505

RE: IRB File # 2010-0203
The Development and Testing of the Codependency-Overeating Model

Dear Dr. Boss:

Your Amendment was reviewed and approved by the Expedited review process on January 31, 2011. You may implement the amendment.

Please note the following information about your approved research protocol:

- Protocol Approval period: January 31, 2011 - October 10, 2011
- Other Materials: Information Sheet
- Research Protocol: Version 3, 1-20-11
- Approved Enrollment #: 1800
- Participant Population: Other
- Performance Sites: Northwest Mississippi Community College
- Amendment Description: Revised Protocol

Amendment Review History:

Receipt Date	Submission Type	Review Process	Review Date	Review Action
01/31/2011	Amendment	Expedited	01/31/2011	Approved

Please remember to:

→ Use **the IRB file number** (2010-0203) on all documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the enclosure, UMMC Investigator Responsibilities, Protection of Human Research Participants.

The IRB has the prerogative and authority to ask additional questions, request further information, require additional revisions, and monitor the conduct of your research and the consent process.

Please note, as a condition for publication of study results, the International Committee of Medical Journal Editors (ICMJE) requires all clinical research studies that began enrolling participants on or after July 1, 2005, to be entered in a public registry **before enrollment begins**. Additionally, Public Law 110-85, Title VIII, enacted September 27, 2007, requires registration of clinical trials and submission of results data through ClinicalTrials.gov. For additional information please go to http://irb.umc.edu/GuidanceInfo/ClinTrialRegistry.htm

Penalties for responsible parties who fail to register applicable clinical studies are significant and may include civil monetary penalties and, for federally-funded studies, withholding or recovery of grant funds.

We wish you the best as you conduct your research. If you have questions or need additional information, please contact the Human Research Office at (601) 984-2815.

Sincerely,

T. David Elkin, Ph.D.
Chairman, Institutional Review Board 1

TDE/kc

Enclosure(s): (1) Investigator Responsibilities, Protection of Human Research Participants

APPENDIX H

IRB AUDIT RESULTS

THE UNIVERSITY OF MISSISSIPPI
MEDICAL CENTER

Office of Integrity and Compliance

2500 N State Street
Jackson, MS 39216-4505
(601) 815-3944 Office
(601) 815-3946 Fax

Date: May 9, 2011

To: Barbara Boss, PhD
School of Nursing

From: Donna E. Knight, RHIA, MPH
Office of Integrity and Compliance

Re: **2010-0203: The Development and Testing of the Codependency –Overeating Model**

Dear Dr. Boss,

Thank you for meeting with me to review the above noted research study. During this audit, your protocol file and participant records were monitored for compliance with IRB requirements and Federal Regulations, CFR Title 45. The table below describes issues/findings as a result of the compliance audit, and any corrective actions required to address those issues. If corrective actions are requested, a Corrective Action Form will be enclosed with this report and will be required to be returned to the Office of Compliance within ten (10) days from the date of this letter. The Corrective Action Form should give a detailed description of problem identified and comprehensive plan of action that conveys how you will prevent this problem from occurring in the future.

IRB:

Compliance Issues/Findings	Recommendations	Corrective Action
No issues	N/A	N/A

Protocol:

Compliance Issues/Findings	Recommendations	Corrective Action
No issues	N/A	N/A

Participant Records:

Compliance Issues/Findings	Recommendations	Corrective Action
N/A	N/A	N/A

All studies involving human research subjects are held to the same standards and regulations, therefore the recommendations and findings of this audit can be applied to all other current and future research projects. As a reminder, you are required to review and comply with the information provided to you by the IRB. Please be sure that you are familiar with UMC Investigator Responsibilities, Protection of Human Research Participants. A copy of this information was attached to your study's approval letter, if it was not you may contact the IRB for additional information. Also, your study may only be conducted as approved by the IRB; changes must be submitted to and approved by the IRB via a Request for Change form prior to implementation of changes.

APPENDIX I

CONTACT INFORMATION SHEET

Contact Information for $100 Walmart Gift Card

(Completion of this information is voluntary-only complete if you choose to participate in the drawing. If you do not want to complete this form and enter the drawing, you are encouraged to complete the questionnaires and participate in the study)

Three (3) names will be drawn for a $100 Walmart Gift Card. One name will be drawn from each campus- Senatobia, Southaven and Oxford. (All online students will be combined with Oxford campus and placed in one drawing.)

Name_____

Contact Information: (phone number or email)

_____

The winning entry will be contacted by the researcher. The gift card will be given to the winner by the researcher at a time and location on campus convenient for the student.

Denise Bynum, MSN, RN

Doctoral Candidate

School of Nursing

University of Mississippi Medical Center

APPENDIX J

NWCC DEMOGRAPHICS

Gender			
Male	3012	37.6	34.2
Female	5003	62.4	65.6
Race			
White	5171	64.5	64.6
Black	2617	32.7	28.2
Other	227	2.8	4.9
Age			
17	9	.11	0
18	98	1.2	13.4
19	938	11.7	23.6
20	1466	18.3	22.0
21-64	5504	68.7	40.9

APPENDIX K

SAMPLE DEMOGRAPHICS

Demographic Characteristics of the Sample

Characteristic	Variation	Frequency	Percent
Sex	Male	194	34.2
	Female	372	65.6
Age	18-19	210	37
	20-21	180	31.7
	22+	177	31.2
Academic Standing	Freshman	310	54.7
	Sophomore	254	44.8
Race	White	366	64.6
	Black	160	28.2
	Other	28	4.9
Religion	Baptist	145	25.6
	Other Christians	282	49.7
	Jewish	1	0.2
	Muslim	2	0.4
	Other	32	5.6
	No Preference	14	2.5
Currently Practicing Religion	Yes	171	30.2
	No	102	18.0
Marital Status	Single	455	81.7
	Married	69	12.4
	Separated/Divorced	33	5.9
	Widowed		
State of Residence	MS	539	95.1
	TN	12	2.2
	Others	3	0.6
County of Residence	Desoto	281	49.6
	Lafayette	69	12.2
	Panola	46	8.1
	Tate	41	7.2
	Other MS counties	76	13.4

Characteristic	Variation	Frequency	Percent
Enrolled in at least 1 Online class	Yes	115	20.3
	No	442	78.0
Currently Employed	Yes	339	59.8
	No	219	38.6
Occupation	Food Services	62	10.9
	Retail	55	9.7
	Nurse/ nursing Assistant/ allied Health	29	5.1
	Office work	19	3.4
	Teacher/ childcare Worker	18	3.2
	Military Service	8	1.4
	Construction/ landscaping	8	1.4
	Service positions	34	6.0
	Sports/recreation	16	2.8
	Business-not Specified above	33	5.8
	Other	12	2.1
Number of Children	0	367	64.7
	1-2	118	20.8
	≥ 3	38	6.7
Household Income	< $20,000	81	14.3
	$20, 000- $39,999	112	19.8
	$40,000- $59,999	83	14.6
	> $ 60,000	172	30.3
Personal Income	None	93	16.4
	< $10,000	268	47.3
	$10,000-$19,999	117	20.6
	≥ $ 20,000	75	13.2

Characteristic	Variation	Frequency	Percent
ACT®	9-18	211	37.2
	19-22	188	33.2
	23-35	82	14.5
Majors	Business/ Accounting/ Finance/Marketing	46	8.1
	Nursing	94	16.6
	General College	43	7.6
	Education	82	14.5
	Allied Health/Health Professions (not RN)	81	14.3
	Social Work	36	6.3
	Criminal Justice	26	4.6
	Other	126	22.2
	Undecided/ None	14	2.5

APPENDIX L

HEALTH RELATED CHARACTERICS

Health Related Characteristics of the Sample

Characteristic	Variation	Frequency	Percent
BMI	Underweight	66	11.6
	Normal weight	230	40.6
	Overweight	139	24.5
	Obese	132	23.3
Pregnant	Yes	15	2.6
	No	544	95.9
Eating Disorders	Yes	23	4.1
	No	536	94.5
Explanation of Eating Disorder	Anorexia	14	2.5
	Bulimia	4	0.7
	Anorexia and bulimia	1	0.2
	Over-exercise/bulimia	1	0.2
	Overeating when sad	1	0.2
	Stress eating	1	0.2
	Sneaking food	1	0.2
	Eating disorder-unspecified	2	0.4
	Body image disturbance (being fat)	1	0.2
	Unable to read answer	1	0.2
Surgical Procedures	None	563	99.3
	Lap band	0	0
	Gastric by-pass	1	0.2
	Abdominoplasty following 100+ wt loss	1	0.2
Health Conditions that Affect Appetite			
	Diabetes	13	
	Hypoglycemia	4	
	Cancer	1	

Characteristic	Variation	Frequency	Percent
	Heart disease	4	
	Thyroid problems	12	
	Gastroparesis	1	
	GI condition (not gastroparesis)	6	
	ADD/ADHD	2	
	Medications	6	
	Other conditions-not usual to cause appetite problems	1	
Past or Present Alcohol/Drug Problem- Personal	Yes	73	12.9
	No	492	86.8
Past or Present Alcohol/Drug Problem-Spouse or Significant Other			
	Yes	64	11.3
	No	490	86.4
Past or Present Alcohol/Drug Problem-Parents			
	Yes	140	24.7
	No	426	75.1
Hospitalized for Mental Health Problem			
	Yes	27	4.8
	No	477	84.1
Hospitalized for condition			
	Depression	5	0.9
	Anxiety	2	0.4
	Bipolar depression	2	0.4
	Bipolar depression/discipline issues as a child	1	0.2
	Anxiety/ADD	1	0.2
	Manic depression/nervous breakdown	1	0.2
	PTSD/schizophrenia	1	0.2
	Bipolar/schizophrenia	1	0.2
	Panic attacks	1	0.2

Characteristic	Variation	Frequency	Percent
	Anger management	2	0.4
	Drugs/rehab	1	0.2
	Suicide attempt	1	0.2
	Self-mutilation/depression/anxiety	1	0.2
	Attempted suicide/diet pill abuse/cutting/eating disorders	1	0.2
	Depression/attempted suicide	1	0.2
	Suicidal ideation/bipolar mania/manic depression disorder/personality disorder	1	0.2
	ADD	1	0.2

APPENDIX M

DEF/ INC SCORES

Inconsistent Responding Score

Score	*Meaning	Frequency	Percent
≤ 4		457	90.3
5	71%	21	3.7
6	92%	22	3.9
≥ 7	98%	11	2.0
Missing		1	.2

*Likelihood that participant responded to items without sufficient regard for their meaning to give an accurate description of self (OQ Manual)

APPENDIX N

CODEPENDENCY CROSS-TABULATIONS

Codependency Scores by Selected Factors

Characteristic	Variation	Minimal	Mild Frequency (Percent)	Moderate/Severe	*p*-value
Sex					*.350*
	Male	133 (68.9)	50 (25.9)	10 (5.2)	
	Female	232 (62.9)	112 (30.4)	25 (6.8)	
Age					.098
	18-19	144 (68.6)	60 (28.6)	6 (2.9)	
	20-21	107 (60.1)	56 (31.5)	15 (8.4)	
	22+	114 (65.1)	47 (26.9)	14 (8.0)	
Academic Standing					.000***
	Freshman	222 (71.6)	81 (26.1)	7 (2.3)	
	Sophomore	143 (57.0)	82 (32.7)	26(10.4)	
Race					.017*
	White	220 (60.4)	117 (32.1)	27 (7.4)	
	Black	120 (75.0)	34 (21.3)	6 (3.8)	
	Other	15 (53.6)	11 (39.3)	2 (7.1)	
Religion					.224
	Baptist	98 (68.1)	33 (22.9)	13 (9.0)	
	Other Christian denominations	181 (64.6)	84 (30.0)	15 (5.4)	
	Jewish	0 (0)	1 (100)	0 (0)	
	Muslim	1 (50.0)	1 (50.0)	0 (0)	
	Other	21 (65.6)	9 (28.1)	2 (6.3)	
	No preference	6 (42.9)	8 (57.1)	0 (0)	
Currently Practicing Religion					.491
	Yes	117 (68.4)	41 (24.0)	13 (7.6)	
	No	59 (58.4)	34 (33.7)	8 (7.9)	
	Other/NA	2 (66.7)	1 (33.3)	0 (0)	
Marital Status					.602
	Single	298 (66.1)	125 (27.7)	28 (6.2)	
	Married	39 (56.5)	25 (36.2)	5 (7.2)	
	Separated/ Divorced/ Widowed	20 (60.6)	11 (33.3)	2 (6.1)	
Majors					.884
	Business/ accounting/ finance/ marketing	31 (67.4)	14 (30.4)	1 (2.2)	
	Nursing	60 (64.5)	24 (25.8)	9 (9.7)	

Characteristic	Variation	Minimal	Mild Frequency (Percent)	Moderate/Severe	*p*-value
	General college	29 (67.4)	11 (25.6)	3 (7.0)	
	Education	51 (63.0)	24 (29.6)	6 (7.4)	
	Allied health/ health professions other than RN	50 (61.7)	27 (33.3)	4 (4.9)	
	Social work	25 (69.4)	8 (22.2)	3 (8.3)	
	Criminal justice	17 (65.4)	9 (34.6)	0 (0)	
	Other	82 (66.1)	34 (27.4)	8 (6.5)	
	Undecided/ none	8 (57.1)	6 (42.9)	0 (0)	
Currently Employed					.146
	Yes	226 (67.3)	88 (26.2)	22 (6.5)	
	No	131 (60.1)	74 (33.9)	13 (6.0)	
Occupation					.412
	Food service	41 (66.1)	19 (30.6)	2 (3.2)	
	Retail	32 (59.3)	18 (33.3)	4 (7.4)	
	Nurse/nursing assistant/allied health	20 (69.0)	8 (27.6)	1 (3.4)	
	Office work	12 (63.2)	2 (10.5)	5 (26.3)	
	Teacher/ childcare worker	11 (61.1)	6 (33.3)	1 (5.6)	
	Military service	6 (75.0)	1 (12.5)	1 (12.5)	
	Construction/ landscaping	5 (62.5)	2 (25.0)	1 (12.5)	
	Service positions	23 (69.7)	7 (21.2)	3 (9.1)	
	Sports/ recreation	11 (68.8)	4 (25.0)	1 (6.3)	
	Business-not specified above	25 (78.1)	7 (21.9)	0 (0)	
	Other	7 (58.3)	4 (33.3)	1 (8.3)	
	None	97 (60.2)	54 (33.5)	10 (6.2)	
Number of Children					.680
	None	241 (66.0)	103 (28.2)	21 (5.8)	

Characteristic	Variation	Minimal	Mild Frequency (Percent)	Moderate/Severe	*p*-value
	1-2	68 (58.6)	39 (33.6)	9 (7.8)	
	3+	24 (63.2)	12 (31.6)	2 (5.3)	
Personal Income					.187
	None	65 (70.7)	24 (26.1)	3 (3.3)	
	< $10,000	171 (63.8)	84 (31.3)	13 (4.9)	
	$10,000-$19,999	71 (61.7)	36 (31.3)	8 (7.0)	
	≥ $20,000	47 (63.5)	18 (24.3)	9 (12.2)	
Household Income					.368
	< $ 20,000	56 (69.1)	21 (25.9)	4 (4.9)	
	$20,000-$39,999	71 (63.4)	30 (26.8)	11 (9.8)	
	$40,000-$59,999	53 (65.4)	26 (32.1)	2 (2.5)	
	≥ $60,000	102 (60.0)	56 (32.9)	12 (7.1)	
ACT®					.914
	9-18	136 (64.5)	60 (28.4)	15 (7.1)	
	19-22	116 (62.7)	56 (30.3)	13 (7.0)	
	23-35	51 (62.2)	27 (32.9)	4 (4.9)	
Eating Disorders					.654
	Yes	18 (60.0)	9 (30.0)	3 (10.0)	
	No	346 (65.2)	153 (28.8)	32 (6.0)	
Surgical procedures					.002**
	None	364 (65.1)	161 (28.8)	34 (6.1)	
	Gastric by-pass	0 (0)	0 (0)	1 (100)	
	Abdomino-plasty	0 (0)	1 (100)	0 (0)	
Past or present alcohol/drug problem-personal					.000***
	Yes	33 (45.2)	26 (35.6)	14 (19.2)	
	No	330 (67.6)	137 (28.1)	21 (4.3)	
Past or present alcohol/drug problem-spouse or significant other					.002**
	Yes	32 (50.0)	22 (34.4)	10 (15.6)	
	No	324 (66.7)	137 (28.2)	25 (5.1)	
Past or present alcohol/drug					.000***

Characteristic	Variation	Minimal	Mild Frequency (Percent)	Moderate/Severe	*p*-value
problem-parents					
	Yes	67 (47.9)	56 (40.0)	17 (12.1)	
	No	297 (70.4)	107 (25.4)	18 (4.3)	
Hospitalized for mental health problem					.001**
	Yes	12 (44.4)	9 (33.3)	6 (22.2)	
	No	309 (65.3)	139 (29.4)	25 (5.3)	
Number of hospitalizations for mental health problem					.019*
	0	309 (65.7)	136 (28.9)	25 (5.3)	
	1	8 (50.0)	5 (31.3)	3 (18.8)	
	2	2 (33.3)	4 (66.7)	0 (0)	
	3	0 (0)	1 (50.0)	1 (50.0)	
	5	1 (100)	0 (0)	0 (0)	
Hospitalized for mental health condition					.000***
	Depression	2 (40.0)	2 (40.0)	1 (20.0)	
	Anxiety	2 (100)	0 (0)	0 (0)	
	Bipolar depression	1 (50.0)	1 (50.0)	0 (0)	
	Bipolar depression/ discipline issues as a child	1 (100)	0 (0)	0 (0)	
	Anxiety/ADD	0 (0)	0 (0)	1 (100)	
	Manic depression/ nervous breakdown	0 (0)	1 (100)	0 (0)	
	PTSD/ schizophrenia	0 (0)	(0)	1 (100)	
	Bipolar/ schizophrenia	1 (100)	0 (0)	0 (0)	
	Panic attacks	0 (0)	0 (0)	1 (100)	
	Anger management	0 (0)	2 (100)	0 (0)	
	Drugs/rehab	1 (100)	0 (0)	0 (0)	
	Suicide	0 (0)	0 (0)	1 (100)	

Characteristic	Variation	Minimal	Mild Frequency (Percent)	Moderate/Severe	*p*-value
	attempt				
	Self mutilation/ depression/ anxiety	0 (0)	1 (100)	0 (0)	
	Attempted suicide/diet pill abuse/cutting/ eating disorders	0 (0)	1 (100)	0 (0)	
	Depression/ attempted suicide	0 (0)	0 (0)	1 (100)	
	Suicidal ideation/ bipolar mania/manic depression disorder/ personality disorder	1 (100)	0 (0)	0 (0)	
	ADD	0 (0)	1 (100)	0 (0)	
	Disorder-not mental health	5 (41.7)	6 (50)	1 (8.3)	
	None	305 (66.0)	132 (28.6)	25 (5.4)	

**p < .05, ** p < .01, *** p < .001*

APPENDIX O

OVEREATING CROSS- TABULATIONS

Overeating Scores by Selected Factors (Percent)

Characteristic	Variation	Non-overeater (score 1-59)	Overeater (score 60-69)	Overeater (score 70-80)	p-value
Sex					*.353*
	Male	87.6	9.8	2.6	
	Female	84.2	12.4	3.0	
Age					.032*
	18-19	90.5	7.6	1.9	
	20-21	84.4	11.2	4.5	
	22+	81.4	16.4	2.3	
Academic Standing					.096
	Freshman	88.3	9.1	2.6	
	Sophomore	82.3	14.6	3.1	
Race					.172
	White	87.7	11.2	1.1	
	Black	81.8	13.8	4.4	
	Other	89.3	0	10.7	
Religion					.722
	Baptist	81.3	16.7	2.1	
	Other Christian denominations	85.5	11.3	3.2	
	Jewish	100	0	0	
	Muslim	100	0	0	
	Other	90.6	9.4	0	
	No preference	85.7	7.1	7.1	
Currently Practicing Religion					.770
	Yes	86.0	11.1	2.9	
	No	85.3	11.8	2.9	
Marital Status					.074
	Single	87.0	9.9	3.1	
	Married	79.7	17.4	2.9	
	Separated/ Divorced/ Widowed	75.8	24.2	0	
Majors					.209
	Business/ accounting/ finance/ marketing	87.0	10.9	2.2	
	Nursing	85.1	13.8	1.1	

Characteristic	Variation	Non-overeater (score 1-59)	Overeater (score 60-69)	Overeater (score 70-80)	p-value
	General college	83.3	11.9	4.9	
	Education	91.5	3.7	4.9	
	Allied health/health professions other than RN	82.7	12.3	4.9	
	Social work	94.4	5.6	0	
	Criminal justice	88.5	11.5	0	
	Other	78.6	18.3	3.2	
	Undecided/ none	92.9	7.1	0	
Currently Employed					.864
	Yes	85.8	11.2	2.9	
	No	85.3	12.4	2.3	
Occupation					.726
	Food service	87.1	11.3	1.6	
	Retail	89.1	10.9	0	
	Nurse/nursing assistant/allied health	93.1	3.4	3.4	
	Office work	84.2	15.8	0	
	Teacher/ childcare worker	77.8	16.7	5.6	
	Military service	62.5	25.0	12.5	
	Construction/ landscaping	75.0	25.0	0	
	Service positions	88.2	8.8	2.9	
	Sports/ recreation	81.3	18.8	0	
	Business-not specified above	84.8	12.1	3.0	
	Other	91.7	0	8.3	
	None	87.6	9.3	3.1	
Number of					.523

Characteristic	Variation	Non-overeater (score 1-59)	Overeater (score 60-69)	Overeater (score 70-80)	p-value
Children					
	None	85.8	10.4	3.8	
	1-2	85.6	13.6	0.8	
	3+	78.9	21.1	0	
Personal Income					.778
	None	83.7	15.2	1.1	
	< $10,000	86.2	10.8	3.0	
	$10,000-$19,999	87.2	10.3	2.6	
	≥ $20,000	82.7	13.3	4.0	
Household Income					.412
	< $ 20,000	88.9	9.9	1.2	
	$20,000-$39,999	81.3	14.3	4.5	
	$40,000-$59,999	86.6	12.2	1.2	
	≥ $60,000	87.2	8.7	4.1	
ACT					.358
	9-18	84.8	11.4	3.8	
	19-22	87.2	10.1	2.7	
	23-35	80.5	17.1	2.4	
Eating Disorders					.365
	Yes	80.0	20.0	0	
	No	85.9	11.0	3.0	
Surgical procedures					.845
	None	85.6	11.6	2.8	
	Gastric by-pass	100	0	0	
	Abdomino-plasty	100	0	0	
Past or present alcohol/drug problem-personal					.863
	Yes	86.3	13.7	0	
	No	85.5	14.5		
Past or present alcohol/drug problem-spouse or significant other					.695
	Yes	87.5	9.4	3.1	
	No	85.7	11.5	2.9	
Past or present					.393

Characteristic	Variation	Non-overeater (score 1-59)	Overeater (score 60-69)	Overeater (score 70-80)	p-value
alcohol/drug problem-parents					
	Yes	87.9	11.4	0.7	
	No	84.9	11.5	3.5	
Hospitalized for mental health problem					.521
	Yes	81.5	18.5	0	
	No	85.9	10.9	3.2	
Number of hospitalizations for mental health problem					.111
	0	85.6	11.2	3.2	
	1	81.3	18.8	0	
	2	100	0	0	
	3	100	0	0	
	5	0	100	0	
Hospitalized for mental health condition					.0443
	Depression	80.0	20.0	0	
	Anxiety	50.0	50.0	0	
	Bipolar depression	50.0	50.0	0	
	Bipolar depression/ discipline issues as a child	100	0	0	
	Anxiety/ADD	100	0	0	
	Manic depression/ nervous breakdown	100	0	0	
	PTSD/ schizophrenia	100	0	0	
	Bipolar/ schizophrenia	0	100	0	
	Panic attacks	0	100	0	
	Anger management	100	0	0	
	Drugs/rehab	100	0	0	

Characteristic	Variation	Non-overeater (score 1-59)	Overeater (score 60-69)	Overeater (score 70-80)	p-value
	Suicide attempt	100	0	0	
	Self mutilation/depression/anxiety	100	0	0	
	Attempted suicide/diet pill abuse/cutting/ eating disorders	100	0	0	
	Depression/attempted suicide	100	0	0	
	Suicidal ideation/ bipolar mania/manic depression disorder/ personality disorder	100	0	0	
	ADD	100	0	0	
	Disorder-not mental health	100	0	0	

*$p < .05$, ** $p < .01$, *** $p < .001$*

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