The Dissertation Committee for Kelly C. Cowling Certifies that this is the approved version of the following dissertation:

Problem Food Cravings: A Cycle Fed by Stigma and Shame

A Classical Grounded Theory Exploration of the Experience of Food Cravings in Obese and Formerly-Obese Women

Committee:

_____
Carolyn A. Phillips, R.N., Ph.D.

_____
Alice S. Hill, RN, PhD, FAAN

_____
Darlene Cheyenne Martin, PhD, RN, FAAN

_____
Gloria L. Brandburg, PhD, RN, GNP-BC

_____
Barbara Camune, DrPH, CNM, WHNP-BC, FACNM

_____
Dean, Graduate School

Problem Food Cravings: A Cycle Fed by Stigma and Shame

A Classical Grounded Theory Exploration of
the Experience of Food Cravings in Obese and Formerly-Obese Women

by

Kelly Cowling, BA, BSN, MSN, RN, CNM

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Dedication

For

Goldilocks

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A Classical Grounded Theory Exploration of the Experience of Food Cravings in Obese and Formerly-Obese Women

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Food cravings, commonly defined as intense desires for a specific food, were identified decades ago as problems for people with a variety of health conditions, including eating disorders (Bruch, 1973), mood disorders (Wurtman, 1988a), premenstrual disorder (Morton et al., 1953) pregnancy (Harries & Hughes, 1958), and obesity (Randolph, 1956). Food cravings are known to complicate adherence to medically prescribed diets (Koch et al., 1999; Doyle et al., 2011), use of medications that have food cravings as a side effect (Garland et al., 1988), and smoking cessation efforts (Toll et al., 2008). Although food cravings are known to be problems for people with a variety of health conditions, research describing, conceptualizing, and treating food cravings has focused largely on populations who do not have health conditions associated with food cravings. Researchers have found that food cravings among these populations

are experienced as merely a curiosity (Hill & Heaton-Brown, 1994) and are so common as to be considered normative (Weingarten & Elston, 1991). The experience of food cravings among populations who may find food cravings problematic has not been described. The present study employed Classical Grounded Theory (CGT) methodology to explore the experience of food cravings among a population with a health condition associated with food cravings, obesity. CGT as described by Glaser & Strauss (1967) and Glaser (e.g., 1998) is a rigorous, inductive methodology for generating theory and is ideally suited for the study of phenomena about which little is known. Individual interviews were conducted with ten obese or formerly obese women who have experienced problems with food cravings. T*he food craving cycle* emerged as the main concern of the participants. *Breaking the cycle* emerged as the core category, the means by which the women seek to resolve their main concern. *Stigma, difference, toxic internal dialogue,* and *struggle* emerged as conceptual categories related to the main concern and the core category. Integration of concepts that emerged from the data resulted in the grounded theory *problem food cravings: a cycle fed by stigma and shame.* The theory may provide new insight to clinicians, researchers, and obese persons who experience problem food cravings.

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List of Abbreviations

BED	Binge Eating Disorder
BMI	Body Mass Index
CGT	Classical Grounded Theory
DBT	Dialectical Behavior Therapy
DEBQ	The Dutch Eating Behaviors Questionnaire
FCI	The Food Craving Inventory
FCQ	Food Cravings Questionnaire
FCQ-S	Food Cravings Questionnaire-State Version
FCQ-T	Food Cravings Questionnaire-Trait Version
FCQ-T-r	Food Cravings Questionnaire-Trait Version, Reduced
FCR	Food Craving Record
OA	Overeaters Anonymous
PI	Principal Investigator
tDCS	Transcranial Direct Current Stimulation
TFEQ	The Three-Factor Eating Questionnaire
TMS	Transcranial Magnetic Stimulation
UTMB	University of Texas Medical Branch
WHO	World Health Organization
YFAS-C	Yale Food Addiction Scale for Children

Chapter 1: Introduction

This dissertation presents the findings of a Classical Grounded Theory study exploring the experiences of food cravings in women who have had problems with food cravings and weight. Chapter One introduces the phenomenon of interest, the significance of the study, and its aim. The Chapter then presents the research question and an overview of the research methodology and design. Chapter One concludes by outlining the plan for the remaining chapters.

PHENOMENON OF INTEREST

Food cravings, commonly defined as strong desires for a specific food, were first described in medical literature as problems associated with a variety of health conditions, including eating disorders (Bruch, 1973), obesity (Randolph, 1956), mood disorders (Wurtman, 1988), premenstrual disorders (Morton et al., 1953), and pregnancy (Harries & Hughes, 1958). Food cravings are known to undermine smoking cessation efforts (Toll et al., 2008), adherence to diets prescribed for management of cardiovascular disease (Doyle et al., 2011) and diabetes (Koch et al., 1999), and management of conditions that require the use of medications that cause food cravings as a side effect (Garland et al., 1988).

SIGNIFICANCE AND AIM OF THE STUDY

Despite the evidence that food cravings pose problems for people who experience health challenges, a review of the literature revealed that most of the research that has been published about food cravings has been conducted using healthy populations who

are not known to experience problems with food cravings. Studies have relied on researcher-generated conceptualizations of food cravings that may not reflect the experiences of persons who experience food cravings as problems. No research was found that explored the nature of food cravings in people who experience food cravings as a problem. Given the association of food cravings with significant health conditions, the experience of food cravings as problems represents a potentially significant health concern. Understanding how food cravings are experienced as problems therefore could guide researchers and healthcare professionals in addressing food cravings as a health challenge. The aim of the study was to explore food cravings experienced as problems by persons with a health condition known to be associated with food cravings, obesity.

RESEARCH QUESTION

As an initial exploration of the phenomenon of interest, the study focused on the experience of food cravings in obese and formerly obese women who have experienced problems with food cravings. The focus on women was based on the researcher's personal interest in Women's Health. The focus on obesity was based on the high prevalence of obesity among adults in the United States (34.9% of adults ages 20 and older in the 2011-2012 National Health and Nutrition Examination Survey were obese, as defined by a body mass index greater than 30 [Ogden et al., 2013]), facilitating recruitment of participants and potentially making the findings of the study relevant to the greatest number of affected people. The research question for the study was: "What are the experiences of food cravings in women who have had problems with food cravings and problems with weight?"

RESEARCH METHODOLOGY

Classical Grounded Theory (CGT) was chosen as the methodology for the study. CGT is a methodology designed to elicit the main concern of people within a substantive area, to conceptualize how the people process their main concern, and thus to discover inductively a theory that is relevant to people within the substantive area (Glaser & Strauss, 1967; Glaser, 1992). CGT requires that the researcher enter the field with no preconceptions about what will be discovered, allowing the theory to emerge from the data (Glaser, 2013). CGT is an ideal methodology for exploration of phenomena about which little is known (Glaser, 1998).

CGT methodology involves systematic, iterative application of specific strategies for the collection and analysis of data (Glaser & Strauss, 1967; Glaser, 1978). Principal CGT strategies are open and selective coding, constant comparison, memo-writing, and theoretical sampling (Glaser & Strauss; Glaser 1978, 1992, 1998). Application of CGT strategies identifies patterns in the data, resulting in the emergence of concepts and conceptual relationships that are grounded in the data (Glaser & Strauss; Glaser, 1978, 1992, 1998). Articulation of the conceptual relationships discovered through CGT strategies results in a substantive grounded theory that fits the data and works to explain variation in the behaviors of people within the area under study (Glaser & Strauss; Glaser, 1978, 1992, 1998).

RESEARCH DESIGN

All study procedures were approved by the Institutional Review Board of the University of Texas Medical Branch (UTMB). Selective recruitment was utilized, to include only participants who have experienced the phenomenon of interest. Participants

were recruited through flyers posted in the Student Center and the School of Nursing at UTMB and through word of mouth. Ten obese or formerly obese women who by self-report had experienced problems with food cravings participated; obesity was defined as self-reported history of weight-for-height consistent with a body mass index of 35 or greater. Participants provided written informed consent for individual recorded interviews. The participants' confidentiality was protected by removing all identifying information from interview transcripts used in data analysis and by assigning each participant a pseudonym. Study data included demographic data, transcribed interviews, researcher memos, and field notes. Data collection and data analysis were conducted using CGT methodology.

PLAN FOR THE REMAINING CHAPTERS

This dissertation presents the background, design, and findings of a Classical Grounded Theory exploration of the experience of food cravings in obese and formerly-obese women. Chapter One of this dissertation has introduced the study. Chapter Two presents a review of the literature related to food cravings. Chapter Three describes the research design and methodology employed in the study, including recruitment of participants, data collection procedures, and data analysis. Chapter Four presents the findings of the study, the grounded theory that emerged through data analysis: *problem food cravings: a cycle fed by stigma and shame.* Chapter Five discusses findings of the study, compares the findings to extant literature, and identifies implications of the study as well as directions for future research.

Chapter Two: Review of Literature

Chapter Two presents a review of literature related to the experience of food cravings. The review of the literature revealed that food cravings, usually defined as intense desires or urges for a specific food, are associated with many health conditions. Food cravings can contribute to disordered eating in premenstrual disorders (Morton et al. 1953), pregnancy (Harries & Hughes, 1958), eating disorders (Bruch, 1973; Abraham & Beumont, 1982) and mood disorders (Wurtman, 1988a, 1988b). Food cravings can contribute to overeating in obese persons (Weingarten & Elston, 1990; Delahanty et al., 2002) and interfere with weight loss efforts (Budak & Thomas, 2009). They can undermine adherence to prescribed diets in people with diabetes (Koch et al., 1999) and heart disease (Doyle et al., 2011). Food cravings can threaten smoking cessation attempts (Toll et al., 2008) and undermine adherence to the use of psychotropic drugs which induce food cravings as a side-effect (Garland et al., 1988; Holt & Peveler, 2009).

Research in food craving is cross-referenced and often intertwined with large bodies of research in two areas: the study of appetite and the study of addiction. Interconnections between appetite and addiction received only sporadic mention in the literature until the decade beginning with 2000, when researchers began to recognize commonalities between appetitive and addictive behaviors and in the challenges faced in the study of those behaviors (Corwin & Hajnal, 2005; Trinko et al., 2007; Volkow & Wise, 2005; Barry et al., 2009). Thus, the review of literature includes references to studies in both appetite and addiction that have influenced food craving research. The review of the literature can be divided into the following sections: early references to food cravings in the scientific literature, studies beginning in the 1990s focused on

normal populations and the conceptualization of food cravings, and current areas of research on food cravings. Potential weaknesses of several studies will be described. A summary of the chapter will identify knowledge gaps and the purpose of the present study which explores the research question, "What are the experiences of food cravings in women who have had problems with food cravings and weight?"

EARLY REFERENCES TO FOOD CRAVINGS IN THE SCIENTIFIC LITERATURE

References to food cravings in the literature were infrequent prior to 1990. This section will review the scientific literature on food cravings prior to 1990, beginning with a discussion of research on food cravings prior to the 1950s.

References to food cravings before the 1950s were found only in literature on hunger and appetite. According to Smith (1997), research on hunger and appetite began in earnest in the United States following the publication in 1912 of the seminal work, "An Explanation of Hunger," by physiologists Cannon and Washburn (1912/1993). Cannon and Washburn demonstrated that hunger is caused by stomach contractions and therefore is physiologically based. On the other hand, the researchers contended that appetite is a psychic phenomenon, related to previous experiences, thus hunger and appetite are distinct motivations food intake. Although Cannon and Washburn did not mention food cravings, the first reference to food cravings that was found in this review of the literature was developed in response to Cannon and Washburn's research: the psychologist Mursell (1925) responded to Cannon and Washburn's research stating that the study of motivation is the purview of psychology, not physiology. Mursell challenged Cannon and Washburn's translation of their findings about hunger and appetite into a theory of motivation, arguing that hunger and appetite are not necessary or sufficient to account for

eating behavior. One of Mursell's arguments was based on his definition of food craving which he described as a regulative mechanism that motivates humans to eat a fairly balanced diet in diverse historical or environmental conditions. However, Mursell did not indicate how craving arises or whether it is psychological or physiological.

Young, a behavioral psychologist, addressed food cravings in a 1933 essay on food preferences and the regulation of eating. Young proposed that an animal's food preferences are measurable by the frequency and amount of each food the animal eats. Young described preference as an indication of craving which exists along a continuum "from the greatest possible craving to the greatest possible aversion" (p.167). The author observed the distinction between hunger and appetite but spoke of craving, hunger, and preference without any clear distinction. Additionally, the relation of hunger and appetite to food craving was not made clear.

One of the first discussions of food cravings in the medical literature was published by Snapper in 1955. Snapper criticized the hypothesis that food cravings are a homeostatic mechanism that helps maintain nutritional balance. He cited examples of craved foods that not only do not correct nutritional deficiencies, but may even worsen them. The author also observed that some cravings may derive from a given population's dietary habits that reflect economic, agricultural, religious, and family traditions. Examples given include preferences for white rice in China, foods derived from fermented beans in China and Indonesia, and ice cream, coffee, wine, beef, and other foods craved by European and American populations. Snapper also commented that to that time there had been no explanation offered for the cravings of pregnant women, "unless one is willing to accept the Freudian conceptions of recent years" (p. 92),

apparently dismissing the Freudian concept as an adequate explanation. Like Young (1933), Snapper used the terms *craving* and *preference* almost interchangeably without discussing whether the terms should be considered equivalent.

Food craving appeared outside the research context of hunger and appetite for the first time in a 1950 study of premenstrual tension by Morton (1950). Morton identified several symptoms of premenstrual tension, including a craving for sweets that he attributed to hypoglycemia. In follow-up research, Morton et al. (1953) reported another symptom associated with premenstrual tension as "a trembling of the hands described by the patients as the 'shakes'" (p. 1182), suggesting that cravings and other symptoms may have been self-reported by participants in their own words. Nevertheless, the researchers did not report other details pertaining to food cravings.

Harries and Hughes's 1958 study of food craving in pregnancy was the first study in the medical literature to discuss, rather than merely to mention, food cravings. The authors themselves reported that their search of the literature revealed little information on food cravings. Their unplanned study came about because of an unexpected flood of letters to the British Broadcasting Corporation in response to a radio program which mentioned strong desires for food in pregnancy; these letters became the source of Harries and Hughes's data. It is unclear whether the word *craving* was mentioned in the broadcast or any of the responses. While the word is used several times in the report, it is always set off with apostrophes. The letters that prompted Harries and Hughes's study included spontaneous narrative descriptions of food cravings, including foods and substances craved. Women reported such strong food cravings that they could unbalance the family budget; they reported having considered stealing to satisfy their cravings. The

women mentioned a sense of secrecy and shame about their cravings. The authors noted that women were lighthearted in reporting their experiences, yet conveyed a sense of how serious the cravings seemed at the time.

Stuart's article published in 1962 entitled, "To Depress the Craving for Food" was the earliest article found that discussed treatment for food cravings. Nevertheless, the article only mentioned the term food craving in the title; the author's primary focus was appetite-suppressing medication for weight loss, although he cites psychotherapy as a way to address the "neurotic need for food" (p.88). He also mentioned the negative effect of dl-amphetamine on the "desire for food" (p. 88). It is unclear whether the author meant to suggest that appetite, neurotic need for food, and desire for food are manifestations of or equivalent to the craving for food.

Food craving research was sporadic until the 1980s when reports of various programs of research began to appear in the literature. The first studies in food craving that formed a program of research were a series of studies conducted by Wurtman, Wurtman, and colleagues beginning in the mid-1980s. Interventional studies by Wurtman et al.'s focused on the role of serotonin in carbohydrate cravings, obesity, and mood and demonstrated the effectiveness of serotonergic drugs in treating obesity (J. J. Wurtman, 1988a, 1988b, 1990; J. J. Wurtman et al., 1989; J. J. Wurtman & Wurtman, 1984; R. J. Wurtman, 1988; R. J. Wurtman et al., 1989; R. J. Wurtman & Wurtman, 1986, 1988, 1996, 1998). Wurtman, Wurtman, and colleagues observed that people who self-identify as carbohydrate cravers eat more carbohydrate-rich foods than non-cravers; moreover, carbohydrate cravers report episodes of emotional distress which resolve with consumption of high-carbohydrate snacks. The researchers relate these findings to

increased availability of serotonin to the brain following carbohydrate consumption, drawing an analogy to the effects of serotonergic medications on improving mood and reducing cravings in people with depression. They conclude that carbohydrate craving reflects use of carbohydrates to self-medicate depressed mood (e.g., R. J. Wurtman & Wurtman, 1986). Limitations in Wurtman et al.'s research are the unstated assumption that food intake is an indication of craving as well as the absence of criteria for the identification of carbohydrate cravers.

Research on food cravings burgeoned in the 1990s, following a review of food craving research, *The Phenomenology of Food Cravings*, by psychologists Weingarten and Elston (1990). The authors reviewed the status of research around the topic of food cravings. Their review showed that the study of food craving is not an isolated phenomenon, but intersects the study of eating behaviors, motivations, preferences, and appetite, eating disorders and obesity, pregnancy and premenstrual symptoms, and alcoholism and addiction. Weingarten and Elston noted that none of these areas of inquiry had coalesced into a program of research as of 1990. The authors articulated problems in research on food craving at that time, including the lack of an operational definition that would allow measurement of food cravings. They pointed out the flaw in any measure of craving intensity by self-report using a rating scale, questioning "whether a rating of 1 on a 10-point scale… is of sufficient intensity to merit the term craving" (p. 232). They noted problems in using food selection, amount of food consumed, or speed of consumption as indicators of craving, especially in research using animals since animals cannot confirm that their behavior reflects a subjective experience of cravings. The authors also discussed the limitations of physiologic measures such as heart rate, skin

conductance, and salivation to indicate food cravings as these factors may reflect anticipation of eating rather than craving. Weingarten and Elston pointed out that issues concerning the conceptualization and operationalization of cravings had plagued researchers in alcohol and addiction studies as well, enough so that the World Health Organization (WHO) had convened a symposium in 1955 to clarify the concept of craving and its role in alcohol abuse (Jellinek et al., 1955). The consensus of the WHO symposium was that the everyday use of the term craving had been applied indiscriminately to aspects of drinking behavior that represent distinct physiological and psychological mechanisms, and that the term craving should not be used in scientific literature. Nevertheless, use of the term craving has persisted in the scientific literature, including literature related to food craving, because, as Weingarten and Elston noted, people intuitively understand the meaning of the term and because "the term 'craving' captures some of our most intense and ubiquitous experiences with drugs and food" (p. 231).

Despite the WHO recommendations, the term craving has continued to be used not only in research on food cravings but in alcohol and addiction studies as well (Kozlowski et al., 1989). Some researchers have avoided use of the term craving although terms used to replace it, such as "urge" (Kozlowski et al.) do not necessarily capture the same experience or increase conceptual clarity. The phenomenon of craving has remained so significant in the fields of alcohol and addiction that 60 years after the recommendation by WHO to abandon the use of the term craving, WHO's own standard for classification of medical diagnoses, the International Classification of Diseases now

includes craving as a criterion for the diagnoses of alcoholism and addiction (Keyes et al., 2011).

The persistence of craving as a phenomenon of interest in research on addictions is not, however, an indication that its conceptualization has become less problematic. Attempts at, even pleas for, clarification of the concept and its measurement and recommendations for research have appeared at intervals over the years since WHO's original statement (Rankin et al., 1979; Pickens & Johanson, 1992; Verheul et al., 1999; Drummond, 2001; Skinner & Aubin, 2010), including entire journal issues and supplements (Anton, 1999; Lowman et al., 2000). Problems in conceptualizing cravings that are encountered in addiction studies also have been encountered in research on food cravings, especially in attempts to operationalize food cravings and the use of other terms to denote food cravings. The next section will demonstrate how controversy over the conceptualization of cravings has manifested in research on food cravings.

Research on Normal Populations and Conceptualizations of Food Cravings

Prior to publication of Weingarten and Elston's (1990) review of research on food cravings, studies about food cravings either had been basic research on hunger and appetite or research on food cravings associated with health conditions. Weingarten and Elston (1991) were the first researchers to explore the prevalence and characteristics of food cravings in a healthy population. They created a Food Craving Questionnaire (FCQ) for their study. The FCQ begins with a definition of craving as "an intense desire to eat a specific food" (p. 174). The questionnaire asks which foods participants crave the most, whether there is any other food that would satisfy that craving, how often participants

follow through on the craving and eat craved food, and how they feel after eating the craved food. The study sample consisted of 1138 undergraduates at a Canadian university; 97% of the female and 68% of the male participants reported having food cravings. Based on the high prevalence of food cravings among a healthy population, the researchers concluded that craving food is a "normative" (p. 173) experience, and not confined to illness or nutritional or hormonal imbalances. Noting that more females than males acknowledge having experienced cravings, the authors identify self-report as a questionable means for studying craving, citing potential under-reporting by males due to a sex difference in interpreting the term or unwillingness to admit to craving. Weingarten and Elston's FCQ has been used in food craving research as recently as 2007 (Gilhoody et al., 2007).

Hill et al. (1991) note that, despite debate about the use of the term craving in scientific literature, "no better term has been forthcoming" (p. 187). Acknowledging the wide use and utility of the term food cravings, Hill et al. assert that research on food cravings should continue and a detailed analysis of the experience of food cravings should be a goal of research. They created a questionnaire for use in their research but, "to accommodate potential differences in participants' understanding of the word 'craving,' this term was not used until the end of the questionnaire. Participants were asked about the frequency and intensity of 'a strong urge to eat a particular food'" (p. 188). Given that the rationale of the study was to analyze the experience of food cravings, it seems self-defeating for the researchers to have used a substitute term; in addition, the use of the term urge instead of the term craving has not been demonstrated to be either equivalent to or conceptually less problematic than craving. Moreover, when participants

were asked at the end of the questionnaire whether a strong urge to eat a particular food is equivalent to a craving for food, only 69% of the participants responded that it was. The remaining 31% stated that cravings are stronger than urges, cravings are for specific foods whereas urges are more general, and cravings are more persistent than urges. Hill, the principle investigator in this study, participated in a later study in which a food craving record (FCR) is used for the prospective study of food craving (Hill & Heaton-Brown, 1994). The authors describe the FCR as a development of the questionnaire used in the Hill et al. 1991 study and include a copy of the new instrument in the appendix. This instrument uses the term craving consistently and without any elaboration or clarification. The FCR uses closed-ended questions to address circumstances, sensations, and emotions when the food craving occurred, what food was craved, how strong the craving was and how hard it was to resist, whether the craved food was eaten, how long the craving lasted, and how the participant felt afterward. The study participants were healthy women recruited by ads in hospital and university magazines asking for women who experienced food cravings. The researchers did not impose their conception of craving or cravers into the FCR and identify this aspect of the study design as a weakness because "the craving episodes were self-defined and evaluated exclusively using measures of subjective experience" (p. 810). The researchers found that food craving is so common that it cannot be presumed to be pathological and that healthy women experience food cravings as a curiosity or an irritant. Like the FCQ, the FCR has been used in subsequent food craving research, as recently as 2007 (Gilhoody et al., 2007).

Studies of hormonal influence on women's food cravings developed into programs of research in the 1990s. Bancroft and colleagues explored the impact of food

craving on women's health and well-being including diabetic control (Cawood et al., 1993), management of depressive symptoms (Bancroft, 1995), and effects of hormonal contraceptives on food cravings (Bancroft & Rennie, 1993). Cohen et al. (1987) disputed craving as a premenstrual phenomenon after finding that food cravings occur throughout the menstrual cycle and intensify during the luteal phase. Comparison of findings in research on the relationship between menstrual phase and food cravings is problematic due to the use of different instruments for data collection in different studies. Moreover, researchers frequently provide no rationale for developing or using a particular instrument.

Findings from research on eating behavior have influenced food craving research. Researchers recognize a physiologic effect of dieting or restrained eating in people who, because of cultural pressures, are trying to achieve or maintain a body weight less than their natural "set point" (Herman & Mack, 1975, p. 648): restrained eating causes a relative hunger, in that the body's physiologic needs are not met by the restricted diet (Herman & Mack). Other factors influencing eating behavior include responses to environmental versus internal cues, mood, and disinhibition of dietary restraint (Bryant et al., 2007). Research on other factors that influence eating behavior has influenced food craving research. Hill et al. (1991), for example, measured craving in restrained and unrestrained eaters (persons who do or do not restrict their eating out of concern for their weight). Hill et al. identified restrained and unrestrained eaters using two existing questionnaires: the Three-Factor Eating Questionnaire (TFEQ) which measures restraint, disinhibition, and hunger (Stunkard & Messick, 1985) and the Dutch Eating Behavior Questionnaire (DEBQ) which assesses restrained, emotional, and external eating (van

Strien et al., 1986). Contradictory findings by various researchers on the contribution of dieting and dietary restraint to the experience of food cravings eventually led Massey and Hill (2012) to recommend that research be redirected from the effects of dieting on food cravings toward strategies for the management of cravings.

Instruments designed to measure food cravings proliferated during the decades of 1990 and 2000. Some measures of food cravings were developed for the sake a single study; others for the purpose of introducing a valid measure of food cravings as a construct. Researchers seeking to distinguish food cravings from other phenomena related to eating behaviors and appetite sometimes used definitions of craving that were so constrained as to exclude potentially relevant findings. Pelchat's operational definitions of food cravings (1997, 2000), for example, specified that "A craving is an intense desire or longing for a particular food. So cravings are different from ordinary food choices. It is possible to like or prefer a food but not crave it" (1997, p. 106), and "Craving a food … differs from simply deciding, for example, to have a certain food for dinner--unless that decision is based on a desire so strong that you would go out of your way to satisfy it" (2000, p. 355). The experience of food cravings in a person whose ordinary food choices might be driven by strong desires would be excluded by the first definition; the use of the word craving to explain being tempted by the presence of particular food is excluded by the second definition. Thus, Pelchat's definitions potentially risk excluding both extreme and commonplace manifestations of food cravings, each of which might merit research. Moreover, Pelchat offered no rationale for the two definitions of food cravings or for using different definitions for different studies.

Gendall et al. (1997) tested a hypothesis that the use of different definitions of food cravings impacted research findings. The authors commented that "investigating a state which has an arbitrary definition and for which no standard criteria nor dimensions for measurement have been established, while problematic, has been attempted by several authors" (p. 64). The researchers developed a structured interview to determine the effect of differing definitions of food cravings on findings related to prevalence of food cravings in a sample of young women. Participants were asked:

> … if they had ever experienced 'an uncontrollable desire to eat a certain food or type of food' and 'a strong urge to eat a specific food,' before being asked if they had ever experienced 'a craving for food.' This was to allow for a varied understanding of the concept and to avoid an initial emotive response to the term 'craving' (p. 65).

The researchers' caution is curious. They offered no reason to believe that asking participants directly about craving would narrow the range of meaning for them; on the contrary, it might have allowed participants to consider the concept without the preconceptions revealed in the researchers' questions. Moreover, it is not immediately obvious how the word craving might have evoked an emotive response, why avoiding an emotive response is desirable, or that speaking of uncontrollable desires and strong urges is likely to evoke a less emotive response. The results of the study, however, did support the researchers' hypothesis that prevalence findings are affected by the definition of food cravings. Fifty-eight percent of the women were identified as cravers when the definition of craver was based only on a positive response to the initial question (ever having had an uncontrollable desire for food, a strong urge for food, or a craving for food). Only four

per cent of the women were identified as cravers when the definition of craving was narrowed to include only cravings that the participant rated as strong and accompanied by three "core features: 1) difficulty resisting the craved food, 2) anxiety or discomfort when abstaining from eating a craved food, and 3) changes in the speed of consumption of craved foods" (p. 67). The core features included in the narrower definition of food cravings were derived from addiction research which led researchers to expect participants to eat more rapidly with stronger cravings. Several participants, however, reported eating a craved food more slowly to prolong the experience. The researchers modified their questionnaire to reflect this finding. The researchers' changing the questionnaire to reflect participants' reports suggests an acknowledgement that participants' voices may have a place in research on food cravings. Nevertheless, the researchers did not report having sought participants' input regarding other features of the experience of food cravings, perpetuating a near absence of opportunity for the experience of food craving as actually experienced by those who crave to be explored and represented in the scientific literature.

Cepeda-Benito et al. (2000) undertook development, validation, and cross-validation of trait and state questionnaires to assess how cravings typically are manifested in an individual or population and to measure an individual's cravings in response to specific situations. Their research represented the first attempt to develop psychometrically sound instruments to assess food craving. Items were drawn from cravings questionnaires in the addictions literature as well as features identified in the literature on eating disorders. The questionnaires were administered to undergraduate students for factor analyses. Cepeda-Benito et al. had proposed five dimensions for the

state version of the questionnaire (FCQ-S). Each of the five dimensions proposed for the Food Craving Questionnaire-State (FCQ-S) was found to have a good fit for the assessment of a craving state. The five dimensions are: an intense desire to eat; anticipation of positive reinforcement that may result from eating; anticipation of relief from negative states and feelings as a result of eating; lack of control over eating; and craving as a physiologic state (i.e., hunger) (p. 169). The researchers had proposed ten dimensions for the *trait* version of the questionnaire (FCQ-T). The ten proposed dimensions were: desire; having intentions and plans to consume food; anticipation of positive reinforcement that may result from eating; anticipation of relief from negative states and feelings as a result of eating; lack of control over eating; thoughts or preoccupation with food; craving as a physiological state; emotions that may be experienced before or during food cravings or eating; cues that may trigger food cravings; and guilt from cravings and/or for giving into them (p.167). Nine of the 10 dimensions proposed for the FCQ-T were supported by factor analyses. The items intended to reflect "desire" were not supported (p. 156), a troublesome result given that the definition of craving typically includes desire. The authors encouraged other researchers to explore desire and other possible dimensions of food cravings as a construct.

Researchers involved in the development of the FCQ-T and the FCQ-S have, in various collaborations, validated them with eating disordered populations (Moreno et al., 2008; Moreno et al., 2009) and validated modified versions for use in Spanish and British populations (Cepeda-Benito et al., 2003; Rodriguez et al., 2007). The FCQ-T and FCQ-S, or variations of the instruments, have been used widely in food cravings research since

their development in 2000. Studies have included basic research comparing brain activity in response to food cues in obese and healthy-weight participants (Nijs et al., 2008), clinical research to predict relapse in bariatric patients (Budak & Thomas, 2009), and the development of a questionnaire to assess sweet-craving in smokers trying to quit smoking (Toll et al., 2008). Over one third of food cravings studies published since 2008 have employed one or both of the FCQ-T and FCQ-S or modifications of them. The factor structures of the instruments have not been supported in studies with overweight and obese persons (Vander Wal et al., 2007; Crowley et al., 2012), an observation that suggests that overweight and obese persons may experience food cravings differently than other populations. Moreover, no researchers have re-evaluated the Desire dimension.

Another widely-used instrument for measurement of food craving appeared at nearly the same time as the FCQ-T and FCQ-S. The Food Craving Inventory (FCI) (White et al., 2002) is a self-report measure of the frequency of specific food cravings from among 28 foods. The FCI's development was motivated by the need to explore whether the macronutrient composition of craved foods supported the hypothesis that cravings are a mechanism to address neurotransmitter imbalances in mood disorders. The researchers were interested in whether factor analysis would result in factors based on the fat or sugar content of various foods, since fat and sugar had been identified as neuromodulators. Factor analysis resulted in four strongly correlated factors: high-fats, sweets, carbohydrates/starches, and fast food fats. The researchers concluded that the four factors can be taken together as a single higher-order construct representing food craving. The authors note that the use of a single higher-order construct *food craving* may be as informative as measures of specific cravings. White and Grilo (2005) validated the FCI in

obese patients with binge eating disorder. The FCI also has been used in studies on dieting (Martin et al., 2006), the relation of food craving to food consumption (Martin et al., 2008), sleep studies (Landis et al., 2009), and tobacco studies (Pepino et al., 2009).

CURRENT APPROACHES TO THE CONCEPTUALIZATION AND STUDY OF FOOD CRAVINGS

Conceptualization of food cravings in more recent research reflects the application of behavioral psychology (e.g. Papachristou et al., 2013; Van Gucht et al., 2013), cognitive science (May et al., 2014), and brain imaging (Pelchat et al., 2004; Kelley et al., 2005) to clarify the underpinnings of the phenomenon and to develop interventions to manage food cravings. Behavioral psychology, cognitive science, and research involving brain imaging share a conceptualization of craving as cue-mediated; that is, a stimulus associated with eating a craved food results in a person's craving or eating the food. Behavioral psychology, cognitive science, and brain imaging offer distinct perspectives on what food cravings are and how cravings might be managed. Van Gucht et al. (2013), for example, using a behavioralist approach, propose that cravings arise from conditioned responses. The researchers report that counterconditioning reduced food cravings in their sample of undergraduate students while extinction did not. Kemps and Tiggeman (2007, 2010, 2013), drawing on cognitive science, posit that cravings are mental imagery of recalled sensory experiences. They have conducted several studies testing the use of alternate imagery and sensory stimuli to change the mental focus of female undergraduate participants during food cravings as a way to reduce the participants' cravings. Other researchers have drawn on brain studies that have identified areas of the brain that are activated by food cues and cravings. Van den Eynde et al. (2010) and Barth et al. (2011) examined repetitive transcranial magnetic stimulation

(TMS) of the prefrontal cortex to reduce cravings in women with bulimia and in healthy women. TMS reduced food cravings in women with bulimia (Van den Eynde et al.) but not in healthy women (Barth et al.). Researchers also have tested prefrontal transcranial direct current stimulation (tDCS) as a way to reduce food cravings. Goldman et al. (2011) found that real tDCS lowered food cravings more than sham tDCS in healthy male and female adults who experienced frequent food cravings, defined as three or more food cravings per week. Kekic et al. (2014) found that tDCS lowered sweet but not savory food cravings in healthy women who experienced one or more food cravings daily.

Several other treatment modalities have been tested as well. Greenway et al. (2010) found that, in overweight and obese adults, treatment with a combination of naltrexone, commonly used in the treatment of addiction, and bupropion, an antidepressant, was associated with decreased frequency and intensity of food cravings and decreased eating in response to food cravings. Mindfulness skills (Alberts et al., 2010; Lacaille, 2014), cognitive reappraisal (Giuliani et al., 2013), attention training (Boutelle et al., 2014; Kemps & Tiggeman, 2014), playing Tetris (Shorka-Brown, 2014), heartrate variability biofeedback (Meule et al., 2012), and use of imagery to replace or diminish the mental salience of cravings (Rodriguez-Martin et al., 2013; Silvers et al., 2014) also have been found to reduce food cravings. It is important to note that most of the strategies for the management of food cravings have been tested in healthy people who are unlikely to benefit from reduction of food cravings, since their food cravings are most likely not experienced as problems (Weingarten & Elston, 1991; Hill & Heaton-Brown, 1994). Research on management of food cravings among persons who do have

health conditions associated with food cravings and who do have problems with food cravings has been minimal.

SUMMARY OF CHAPTER TWO

Although early references to food cravings in the scientific literature dealt with problem food cravings associated with health conditions, most research on food cravings since the 1990s has focused on populations that are not defined by health conditions associated with food cravings. Research has focused on populations referred to by researchers as the "general population" (Weingarten & Elston, 1991, p. 168; Hill and Heaton-Brown, 1994, p. 802) or "non-clinical populations" (Weingarten & Elston, 1991, p.168; Cepeda-Benito et al., 2000, p. 171). Food cravings in such populations have been described as "normative" (Weingarten & Elston, 1991, p. 173) and "benign… merely curious or irritating episodes rather than having a distressing nature" (Hill & Heaton-Brown, 1994, p. 810). The experience of food cravings in persons who have health conditions associated with cravings and may experience food cravings as a problem has received little attention. Moreover, researchers have conceptualized food cravings based in part on preconceptions and theories imported from other areas of study, rather than a disciplined study of the phenomenon as described first-hand by those who experience it. No qualitative research on the experience of food cravings that could provide a first-hand description of food cravings was found in the review of the literature. Recent research has been directed toward management of food cravings although such research has focused on persons who do not experience problems with food cravings, rather than persons who might benefit from or inform such research.

The present study was undertaken to address gaps in knowledge both with respect to first-hand accounts of the phenomenon of craving and with respect to food cravings experienced not merely as a curiosity but as a problem. The purpose of the classical grounded theory study was to develop a theory about the experience of problem food cravings among members of a population who are known to be affected by food cravings using classical grounded theory methodology. The population chosen for the study was women who are or formerly have been obese and who have had problems with food cravings.

PLAN FOR THE REMAINING CHAPTERS

Chapter Three will discuss the methodology used in this study. Chapter Four will present the findings. Chapter Five will be a discussion of the findings as they relate to extant literature and directions for future research.

Chapter 3: Research Design

The literature review demonstrated that scholarly literature on the subjective experience of food cravings is inadequate, limiting the possibility of developing testable hypotheses, viable instruments, and effective interventions. Grounded Theory Methodology, by means of which the subjective experience of participants can be elicited and analyzed to generate a substantive theory about the area under study (Glaser & Strauss, 1967), was chosen for this project. Grounded Theory Methodology was first described by Glaser and Strauss in 1967 and further explained by Glaser in subsequent works (1978, 1992, 1998, 2009, 2011, 2014). Glaser's description of the methodology, referred to as Classical Grounded Theory (CGT) (Glaser, 2009), guided data collection and analysis in the present study. Chapter Three will describe how CGT was utilized in this study that explores the experience of food cravings by women with a history of obesity.

CLASSICAL GROUNDED THEORY METHODOLOGY

Sociologists Glaser and Strauss developed grounded theory methodology after discovering that meaningful theories about human behaviors and perceptions can be developed inductively from data, i.e. *grounded* in the data, through constant comparative analysis (Glaser & Strauss, 1967). Glaser and Strauss found that constant comparison of empirical incidents reveals latent patterns in the data, patterns that suggest or indicate concepts which reflect the main concern of the participants (Glaser, 1998). Patterns that are indicated by varied incidents emerge as multi-indicator concepts, which can contribute to a conceptual or theoretical understanding of the empirical data. As the

explanatory significance of various concepts becomes apparent through constant comparison, some concepts rise to the level of categories. Connections between categories and their properties emerge indicating the main concern of the participants (Glaser, 1992). The emergence of the participants' main concern, other categories, and the properties of the categories, indicate a core category, the means by which the participants process their main concern (Glaser, 1992). The connections between categories and their properties, when articulated as propositions or as a narrative discussion, constitute a grounded theory that accounts for patterns of behavior that are relevant and problematic for the participants (Glaser & Strauss, 1967; Glaser, 1998).

Glaser and Strauss (1967) contrasted the aim of grounded theory methodology, i.e., the discovery or development of theory through induction, with the more familiar research objective of testing or verifying existing theory through deduction. In deductive research, relevant concepts and the data to be collected are determined before data collection begins, and any deviation from the initial design represents a threat to the study (1967). Types or sources of relevant data are not delimited by existing theories or concepts in advance in a grounded theory study. Relevant concepts emerge only as ongoing data collection and analysis take place.

Because of the differing aims of deductive and grounded theory methodologies, the criteria for judging a grounded theory study are not related to sample size and representativeness, statistical significance, or reliability and validity of measures, as is the case in verificational studies (Glaser and Strauss, 1967). According to Glaser (1978, 1992), the criteria for judging a grounded theory are fit, work, relevance, and modifiability: the theory fits if it is faithful to and readily applicable to the data under

study; it works if it accounts for most of the variation in the behavior, interactions, or perceptions of the participants around their main concern; it is relevant if it fits and works; and it is modifiable if it accommodates the integration of new data. Grounded theory methodology supports the goals of the present study: 1) to discover the main concern of women who have had significant weight problems and food cravings, and how these women process their main concern, as expressed in their own words, and 2) to offer a theory which explains most variation of in the behavior or perceptions of the participants around their main concern. The methodological strategies that were used in support of the goals of the present study are described in the following section.

METHODOLOGICAL STRATEGIES FOR DATA GATHERING AND ANALYSIS

Recruitment began when University of Texas Medical Branch Institutional Review Board approval of the study was obtained (Appendix A). Purposive sampling was used to recruit women who self-identify as ever having had food cravings and ever having had a weight problem. Flyers (Appendix B) were posted, with appropriate permission, on bulletin boards in the student center and the school of nursing of a large university. Snowball sampling, wherein a participant identifies other potential recruits, was also employed. Women who met the following criteria were eligible for inclusion in the study: 18 years or older; native English-speakers; reported having had food cravings other than during pregnancy or premenstrually; reported current or previous weight-for-height consistent with a body mass index (BMI) of 35 or greater; and expressed willingness to participate in one or more recorded interviews. Potential participants were excluded from the study if they were not female, were not 18 years or older, were not native English- speakers, had never had food cravings, or had food cravings only during

pregnancy or premenstrually, had never had a weight consistent with a BMI of 35 or greater, or were not willing to participate one or more recorded interviews.

When a potential participant contacted the PI about the study, the PI thanked the potential participant for her interest and asked her if she was18 years or older, if she considered English her primary language, and if she had experienced food cravings other than during pregnancy or premenstrually. If the potential participant met these criteria, the PI advised her that the next question was about weight; the PI explained that the potential participant would not be asked about her current weight, but would be asked her height and whether she had ever weighed a specific weight or higher. If the potential participant agreed to answer this question, the PI asked the potential participant's height. The PI used a simplified BMI chart (Appendix C) to identify the weight in pounds that represents a BMI of 35 for a person of the participant's stated height. The PI then asked the potential participant whether she had ever weighed that many pounds or more. An affirmative response indicated that the potential participant had a history of a BMI of 35 or greater and therefore met the criteria for inclusion in the study. If the potential participant was willing to participate in one or more recorded interviews and agreed to participate in the study, an individual face-to-face interview was scheduled at a time and place convenient to the participant and private enough to ensure confidentiality.

Participants' informed consent (Appendix D) to participate in the study and to be recorded during interviews was obtained in writing on the day of the interview, prior to data collection. The PI answered any questions the participants had about the nature of the study. No incentive was offered to participants other than the opportunity to freely express their concerns about their problems with food cravings in a non-judgmental

environment and potentially to help researchers and healthcare providers understand the concerns of women who experience problems with food cravings and weight. The possibility of psychological distress when discussing sensitive topics related to eating behaviors and weight was identified as a potential risk of participation. Participants were assured that they could withdraw from the study at any time without having to explain and were offered a list of resources for support with eating issues and emotional distress (Appendix E).

Ten women participated in the study. Demographic data was collected using a form designed for this study (Appendix F) including age, ethnicity, birthplace, primary language spoken in childhood home, self-reported height, self-reported history of weight consistent with a body mass index 35 or greater, and history of food cravings when not pregnant or premenstrual. Two of the participants identify themselves as Hispanic and eight identify as White or Caucasian. All are native English speakers. At the time of the interviews, their ages ranged from 28 to 58 years old with an average age of 48. Each of the women is college-educated: one has an associate's degree, nine have bachelor's degrees, and five have master's degrees.

Data in this study consisted of demographic data, interview data, the researcher's field notes, and memos created during data collection and analysis, as described in the data analysis section below. Because the purpose of the study was to explore the participants' experiences of food cravings, the initial interview guide (Appendix G) consisted only of one topical probe: "Tell me whatever you would like to about your experiences with food cravings." The course of each interview was determined by the participants' responses. The PI encouraged participants to elaborate on their experiences

with prompts such as: “Tell me more about…” “Can you tell me about a time when…?” “I’m really interested in what you said about…” “How (else) would you describe food cravings?” and “Hmmm.” Once data analysis of the first interviews had suggested the main concern of the participants and a tentative core category, the PI added substantive questions to evaluate the fit of the core category to the data. The substantive questions included content derived from previous data collection and analysis. For example, to evaluate the conceptual fit of *shame* with the main concern, *the food craving cycle*, and the emerging core category, *breaking the cycle*, the PI asked, “Some of the women I’ve interviewed talked about hiding or secrecy. Has that been a part of the picture for you?”

The PI conducted each interview, digitally recording the interview and making occasional written notes as the interview proceeded. The digital file of each interview was sent electronically to a professional transcription service that maintains confidentiality and transmits data securely. Transcriptions were returned to the PI electronically. The PI reviewed each transcription for accuracy by reading line by line while listening to the recorded interview, making corrections as needed. Once the PI was satisfied with the transcription, the transcription service was notified to delete their copy of files related to that interview. The PI created a duplicate electronic file of each transcribed interview, removing all personally identifying content and assigning the participant a pseudonym that was unlike the participant’s actual name. Transcripts identified only by the assigned pseudonym were used for data analysis. A pristine copy of each transcript and the digital recording of each interview were stored in a password protected external drive that was kept in a locked file in the PI’s home office. Signed

consent forms were kept in a separate locked file. Recorded interviews and pristine transcripts will be destroyed once the research and all reports have been completed.

Data analysis of each transcription began when the transcription had been reviewed and deidentified by the PI. Glaser (1992) says CGT data analysis should begin with open coding. Open coding is line-by-line analysis of the transcript while identifying incidents in the data and giving the incidents conceptual labels. The process of open coding is guided by continually asking three questions: "'What is this data a study of?' 'What category or what property of a category does this incident indicate?' and 'What is actually happening in the data?'" (Glaser, 1992, p. 51). Constant comparison, a fundamental strategy of CGT data analysis, was used during open coding by comparing every incident to every other incident, every code to every incident, and every code to every other code (Glaser, 1992). Constant comparison allows patterns to emerge from the data (Glaser, 1992). The PI also began memo-writing, another fundamental strategy of CGT (Glaser, 2014), during open coding, by making notes about possible conceptual relationships indicated by the data.

The PI and the PI's research advisor independently performed open coding on every transcript. Three other doctoral students also independently coded the first four transcripts. Substantial agreement was found in the codes used to conceptualize incidents and categories of related concepts began to emerge. One category, *a cycle*, emerged tentatively as the main concern after the fourth interview. Two more interviews were conducted using only the original topical probe "Tell me whatever you would like to about your experiences with food cravings" and follow-up prompts in order to evaluate *a cycle* as the main concern. Constant comparison of data from the first six interviews

established *the food craving cycle* as the main concern and *breaking the cycle* emerged as a tentative core category. The PI continued to begin each interview with the original topical probe, "Tell me whatever you would like to about your experiences with food cravings," but also asked substantive questions focused more on the core category and its properties, to theoretically sample the data and evaluate the fit of the core category (Glaser, 1978). Having identified *breaking the cycle* as the tentative core category, the PI began selective coding. Selective coding focuses on evaluating and expanding conceptual relationships among the core category, its properties, and other categories in order to test the fit of the core category with the data (Glaser, 1978). Selective coding of data from the seventh and eighth interviews confirmed the fit of the core category and no data was found indicating categories or relationships that had not emerged already in previous interviews. The PI and the PI's advisor did not expect to find new data in subsequent interviews and considered the data to have been saturated. Two more interviews were conducted to confirm saturation. Again, no data was found indicating categories or relationships that had not already emerged in previous interviews. Therefore, data collection was discontinued after the tenth interview.

Once saturation occurred and data collection was discontinued, the PI used the constant comparative method to theoretically sort memos that were written during data analysis. As memos were sorted, a theoretical outline emerged. The emergent theoretical outline identified relationships between the core category, its properties, and other categories (Glaser, 1978). Theoretical sorting of memos thus clarified the properties of the main concern of the participants and how they process it, resulting in a theory about the experiences of the participants with food cravings. Findings were written as a theory,

in the form of a theoretical discussion, about *the food craving cycle* and *breaking the food craving cycle*. The theory, *problem food cravings: a cycle fed by stigma and shame*, will be presented in Chapter Four.

SUMMARY OF CHAPTER THREE

Chapter Three has presented the research design of the present study. The implementation of CGT methodology to the research question was described. The emergence of the main concern of the participants, *the food craving cycle*, was discussed. The core category, the means by which the participants seek to resolve their main concern, was identified as *breaking the food craving cycle*.

PLAN FOR REMAINING CHAPTERS

The grounded theory that emerged through data analysis, *problem food cravings: a cycle fed by stigma and shame,* will be presented in Chapter Four. Chapter Five will discuss the study findings including the grounded theory that emerged from the data and compare those findings to extant literature. Chapter Five will also discuss the study's strengths and limitations as well as suggestions for future research and implications for healthcare professionals.

Chapter Four: Findings

INTRODUCTION

This chapter presents a theory of the women's experiences of food cravings based on the PI's analysis of data using Classical Grounded Theory methodology as described in the preceding chapter. The theory is informed by the observation that the women do not distinguish their experiences of problems with food cravings from their problems with weight. Their experiences of problems with weight reflect the social stigma of obesity; therefore, by extension, their experiences with food cravings are informed by the social stigma of obesity as well. The women experience relentless shame, self-recrimination, and self-hatred regarding their inability to control their food cravings, eat moderately, and conform to societal weight standards. They experience weight problems as defining of their worth and judge themselves harshly when their efforts to resist cravings and to manage their weight fail.

Internalization of stigma manifests itself as a toxic inner dialogue which accompanies a sequence of events that begins with the occurrence of a food craving: having the food craving, eating against one's better judgment in response to the food craving, then berating oneself for having eaten. The internal dialogue can be brutal and relentless.

Cyclic recurrence of the sequence of events just described poses a threat to the women's wellbeing. The food craving cycle affects not only their weight, but every area of the women's lives. Thus, the main concern of the women with respect to the experience of food cravings is the food craving cycle. The women continually try to resolve this concern by breaking the cycle.

This chapter expands on the ideas just introduced by discussing the nature of the food craving cycle and the efforts women make to break the cycle. The narrative delineates the properties of the main concern and the core category, i.e. *the food craving cycle* and *breaking the cycle,* and describes other significant categories that emerged from the data: *stigma, difference, toxic internal dialogue*, and *struggle*. The interplay among the main concern, the core category, and the other categories just listed is demonstrated as the discussion unfolds. The narrative presents the grounded theory that emerged from data collection and analysis: *problem food cravings: a cycle fed by stigma and shame.*

The women who participated in the study are quoted throughout the discussion in order to illustrate and amplify the categories, category properties, and the interrelations among categories and properties that reflect the women's concerns. Each woman speaks in her own way about concerns that emerged in common among the women. Some women weave a concern throughout the interview like a thread; others speak of the same concern at length during discrete parts of the interview. Quotations in the discussion that follows have been chosen for the conveniently distilled or detailed manner in which a particular woman speaks about a given topic. Therefore some women are quoted more extensively than others on some topics. Pseudonyms are used when referring to or quoting the women.

STIGMA

Stigma is discussed first, because the experiences of the women with food cravings can only be understood in the context of stigma. All of the women express having experienced the stigma of obesity. Many of the women perceive that other people, especially those without apparent weight problems, look at them with disgust, even

abhorrence. They perceive others as judging their worth and character based on their weight and feel judged as inferior, lazy, stupid, and lacking in willpower. The women perceive the judgment of others everywhere and in everyday situations such as at work, in elevators, in restaurants, or at the doctor's office. Women who had weight problems as children experienced judgment and shame within their families and at school. Women who have lost significant amounts of weight remark on how much more favorably and respectfully other people treat them after their weight loss.

The women have internalized the stigma of obesity. Their anticipation of unfavorable judgment by others results in fear of rejection and affects the women's relationships with themselves. Experiences and behaviors that reinforce the women's weight problems give rise to shame, self-recrimination, and self-loathing, resulting in a toxic inner dialogue which distills and magnifies the prejudices and judgments they experience in interactions with others. Thus, the food craving cycle, as a reinforcer of weight problems, is fertile ground for the toxic internal dialogue.

DIFFERENCE

The women experience the weight problems that lead to their stigmatized physical appearance as intractable and demoralizing. They are frustrated and baffled by differences they perceive between their internal experiences and the behaviors of people who do not seem to struggle with their weight and compare themselves unfavorably to others who seem not to struggle with controlling their eating and their weight. All their lives they have heard that willpower and knowledge are the tools for success in weight management. Nevertheless, despite being intelligent and determined, these women have never found knowledge and willpower adequate to control their weight. The women

experience their inability to manage their weight as a personal failing; some believe, or have held the belief, that they are, themselves, failures.

The social stigma of obesity informs and reinforces the women's self-perceptions. The women believe that they are different from other people in important ways. They believe they are flawed and worth less than others:

> … "I am this defect," like that is what I am. It is not that I am a person who is having this struggle, it is that I *am* this problem… dangerously and hopelessly flawed… (Kaye, lines 824-832)

Their struggles with their weight leave them continually asking, "What's wrong with me?" Hazel states she has wondered since childhood, "Why is it me? Why do I have the problem and other people don't? What's wrong with me is actually the whole thing" (lines 1258-1264).

The women recognize that there is something different about the way they relate to food compared to others. Most have been unable to discern anything about the difference that could help them with their struggles. Kaye states:

> Clearly there is something that is different for me than it is for somebody who has not dealt with weight issues, or not just even weight issues-- we are talking about morbid obesity. So there is definitely something that is different for me about the experience and the relationship with food that is not true of somebody who has never been in that position. Now, whether it is because they never let themselves get there or they are just not naturally inclined to get there, I do not know. I don't know why they are different, but I think they have to be different… I think there is something different about me that makes it so that other people do not struggle

> this way. I think that there must be, because they recognize it. Those people on the other side recognize it, looking at me like, "What's wrong with her?" So, yeah, I think you are aware that there is this flaw, but sort of powerless to solve it, because other people, the people who don't have this problem didn't fix it. They just don't have the problem. (lines 272-306)

Hazel recalls feeling even as a child that she was different from other people with respect to her need to eat:

> I always felt like I needed to eat more than other people, like when I looked at other people and couldn't stop it the way other people could… It felt like I needed it as opposed to what other people did, which was just eat… (lines 186-192)

Ava describes realizing as a young adult how different she is compared to her husband with respect to food:

> It was obvious to me that he could be in a room with all this food and not even desire it. I was like, "What? How could you avoid eating this food?" It had never dawned on me that there were people that could really just say, "I could take it or leave it," because it was such a big part of my thinking. I never realized that [eating just because food is present] was a weird thing for some, that there were people who didn't think that way… I just thought it was normal. (lines 319-329)

Grace describes her discovery at age 30 that not all people related to food as a constant preoccupation. She has told friends who do not have problem food cravings about her cravings and her preoccupation with food:

> When I talk to them about it now… they are like, "Really? *Really*?" They can't, they do not understand. It is a shock to them. I am like, "You don't have this?

You don't experience that?" That is the difference. I mean, not everybody has the same feelings I do. (lines 457-462)

The women identify with only with one group of people in their struggle with cravings: substance abusers. Every woman interviewed draws a parallel between her personal experience of food cravings and eating in response to food cravings with the cravings and substance abuse of alcoholics and addicts. The women see the alcoholic's or addict's pattern of craving for the substance, use of the substance in the face of adverse consequences, and remorse, as similar to the pattern each of the women experiences with food cravings: craving food, eating against her better judgment, and self-recrimination followed, sooner or later, by repetition of the sequence. All of the women identify frustrating limits to their similarity to substance abusers, observing that alcoholics or addicts can completely abstain from the substances they abuse, but "…you need food to live. You have to actually invite the demon into your house" (Ava, lines 446-447).

The women perceive that others who do not share the women's experiences with cravings and food are unable to understand it. The lack of understanding by others is frustrating. Hazel tearfully states that:

> My husband knows some of it but he doesn't know how-- because he doesn't have a weight problem… I can't explain to my husband how it makes me feel or what the cycle is like because you start craving it, you have to have it; you do it, you feel like sh** that you did it. If you feel like sh**, you have to start again and there's no way to…You can't stop it. (lines 334-338)

The women also find that others do not understand their experience because others assume that they know what the "problem" is:

> People who have not had those issues, they look down… like they have this crystal clear foresight and hindsight and they have got it all figured out… they have got it figured out and there is something that you don't know. (Kaye, lines 1172-1178)

The women feel alienated, stigmatized, and different from others who do not struggle with or understand the struggle with food cravings.

THE FOOD CRAVING CYCLE

The food craving cycle is a sequence of events that can be precipitated by a problem food craving. The cycle typically includes four phases: a problem food craving, eating in response to the craving, self-recrimination, and a period of quiescence in which cravings are weakened or absent and which ends when another problem craving occurs. The food craving cycle is depicted in Figure 1.

Figure 1. The Food Craving Cycle

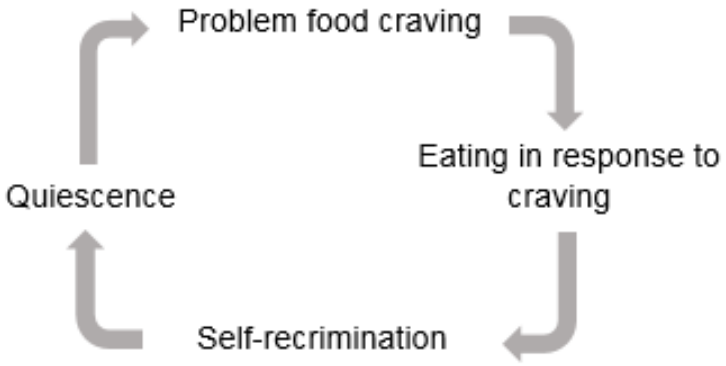

Figure 1. The cycle typically has four phases beginning with a problem food craving, which will be defined in the text. The arrows show the progression of the cycle from the craving phase to the eating phase, followed by the self-recrimination phase and then the quiescent phase.

The term “problem food cravings” is defined in this document according to the experiences of the women. The women find food cravings to be problems for them only when eating in response to the craving would go against their better judgment. Cravings for foods that can be eaten in accord with their better judgment are not experienced by the women as problems. For example, a woman who judges eating Brussels sprouts to be acceptable may crave Brussels sprouts and not consider the craving a problem. Similarly, a woman who judges eating fast food daily at lunch to be acceptable will not consider a craving for fast food at lunch to be a problem. Because a woman’s judgment may align more or less well with recognized dietary standards, poorly informed judgment may cause a woman to “misclassify” cravings from an objective standpoint. Thus, problem cravings can be seen as subjectively defined based on each woman’s judgment. Although a woman’s judgment may become better informed over time, women with problem food cravings may eat against their better judgment even when they are well informed.

The women typically crave foods or combinations of food that are high in fat, sugar, sodium, and refined carbohydrates. Cravings can be specific (Fritos, nachos), fairly specific (“anything by Frito-Lay” [Ava, line 26]) or general (salty foods, sweet foods, carbs, fast food). The women crave foods containing sugar, flour, refined corn, chocolate, cheese, or combinations of these ingredients, often in the form of low-quality convenience foods. Eating such foods goes against the women’s better judgment because consuming the foods perpetuates weight problems; eating such foods is followed by remorse, typically in the form of brutal self-recrimination. The women only reported three craved foods that did not meet this description. These cravings were for Brussel sprouts, pad Thai, and celery with peanut butter. The women do not consider cravings for

these relatively healthier foods to be problem cravings with respect to weight management. In contrast, one woman reported that her cravings for pad Thai and celery with peanut butter are problems because some of the ingredients can precipitate migraines; she experiences cravings for pad Thai and celery with peanut butter as problem cravings with respect to migraine management but not with respect to weight management.

The first three phases of the food craving cycle, the craving, eating, and self-recrimination phases, occur acutely over the course of minutes, hours, or days. The fourth phase, quiescence, is typically longer, lasting hours, days, or months. Efforts taken by the women during the quiescent phase may prolong the phase into a remission that can last months or even years. The quiescent phase can be considered a period of susceptibility to problem food cravings rather than an acute event. The characteristics of each phase of the food craving cycle and the potential for remission will be expanded in the remainder of this chapter.

This section has introduced the food craving cycle and offered a definition of problem food cravings based on the women's experiences. The next three sections will follow the women's experiences of the cycle through each of its four phases, beginning with the occurrence of the problem craving. The use of the word craving in the remainder of this chapter should be understood to refer to problem food cravings.

THE CRAVING PHASE OF THE CYCLE

The craving phase of the cycle begins when a food craving occurs. This phase of the cycle lasts until the craving is resolved, either through movement to the next phase, eating in response to craving, or by other means. The following section will begin with a

description of the experience of problem cravings and then will discuss ways in which the women attempt to resolve their cravings.

The women experience cravings as preoccupying thoughts about getting and eating specific foods. The preoccupation can range from mild to intense. Ava describes subtle food cravings:

> … regardless of what I'm doing-- I could be cleaning the house, I could be working, I can be out in the yard, mowing the yard, and still having it in the back of my head. It's like an underlying thought that I've got that's very subtle and it's there behind all those other thoughts that are ahead of it… "How am I going to satisfy this? How am I going to satiate this need that I have?" (lines 111-119)

Ava also describes her cravings as reaching a point where "I can't think of anything else until I feel like a wolf howling at the moon" (lines 760-761).

Some women, unlike Ava, experience cravings as obsession that does not have an initial, more subtle, preoccupation:

> If there is [craved] food around, and I know it is there, I want it. If I am not eating it at the time, I am thinking about eating it. I am wondering, "When can I eat it?" For example, we try not to keep snacks in the house, like any types of chips or things like that because if it is there, we are going to eat them all. If I see someone eating something, I want it. I will obsess about it, thinking of it until I can have it. … It stays on my mind until I can fulfill it and have it. Even when and after I have it, if I know there is more, I am still going to want more until it is not available anymore. That is… what I feel whenever I have cravings about something. It just

> sticks on my mind. It is like it is repeating until I get it and eat it all. (Grace, lines 44-57)

The obsession may be insistent and persistent: "It's just so insidious. It just never lets up" (Dana, line 1145).

The preoccupation and obsession that characterize the women's cravings are accompanied by desire, which may be sudden, urgent, even frantic:

> I would just be driving home and thinking, "Oh, I really want some Mexican. I really want some nachos, oh—I really want some nachos. I want some nachos." And go get nachos when I had food at home that was prepared to cook, but that was not going to satisfy me. I wanted nachos. (Renée, lines 65-69)

The desire for the craved food may be experienced as a need and may rise to the level of compulsion. Kaye likens her experience with food cravings to the compulsion of a heroin addict, and says "You do not have a choice. You have-- you just *need* to do this" (lines 336-337).

The desire or need may be specific; not just any food will satisfy the craving: "It was a desire that that is what I want and nothing else is going to satisfy" (Renée, lines 89-90). Women whose cravings are specific may become "anxious if the right stuff isn't in the house" (Hazel, line 539).

Most of the women do not recall experiencing any physical sensations associated with the craving. Two women, however, report feeling the craving not only as preoccupation, desire, and anxiety, like the other women, but also as a sensation in the mouth. One woman, describing the sensation, says that a craving for cashews activates "cashew receptors" in her mouth (Kaye, line 568).

The women differentiate between mild cravings and strong, intense, or bad ones. The intensity of a craving may wax and wane: a mild craving can become stronger, and a strong one become milder. The experiencing of any craving, even a mild one, may be distressing because the women know a mild craving can become stronger and more difficult to manage.

Cravings are unwelcome. When cravings occur the women take steps to resolve them, either by eating the craved food or by trying to manage the craving. Success in managing the craving varies in part with the craving's intensity and duration: a stronger and longer-lasting craving is less likely to be resolved by management strategies; it is more likely to result in a woman's eating against her better judgment. The women report that cravings usually abate in less than an hour, with estimates ranging from 10 to 45 minutes, although cravings can last overnight: "If you don't get it that day, then… you get up the next morning and just start thinking, 'Hmm. Can I get it today? I didn't get them yesterday. Can I get them today? (Renée, lines 89-94).'" Cravings may reoccur or re-intensify within minutes of abating and may occur several times a day.

The women struggle with the conflict between their better judgment and the desire to eat the craved food. The conflict manifests as an internal dialogue as the woman negotiates with herself about eating or not eating the craved food. The dialogue usually occurs between two distinct inner voices: "'I shouldn't have that piece. I should--' 'It's only a bowl of cereal.' 'Well, you know, but I ate two hours ago'" (Evelyn, lines 177-179). The internal dialogue may be benign when the craving occurs, or the woman may feel shame and berate herself simply for having a craving. She may berate herself further if the craving is for something peculiar:

> If I am craving something gross, not only is it shameful to be craving something in the first place, "It is midnight, Kaye. You already ate basically two dinners—what are you doing?" But what I really want is ketchup on bread. So… there is the shame of the craving itself and of the indulging and then there is the shame of I am craving something gross. (Kaye, lines 493-499)

The women may try to understand the experience of the craving and what may have given rise to the craving. They experience confusion between cravings and hunger, and struggle to decipher their experiences. The internal dialogue reflects this struggle: "I'm thinking, 'I had a good lunch' or 'I had a good dinner. Why would I be hungry again?' So I've struggled with 'Is this hunger or is this a craving?'" (Evelyn, lines 20-22). A woman may judge herself for being unable to distinguish cravings from hunger: "It's just twisted thinking that got me to the point where I didn't even know what hunger felt like anymore" (Ava, lines 869-871).

While the women are not always able to distinguish hunger from craving in actual experience, they do differentiate the two conceptually, identifying hunger as a potential precursor to food cravings. Cravings also may be attributed to other physiologic causes, including fatigue, thirst, migraine aura, drinking alcohol, and smoking marijuana. Several women who identify themselves as food addicts consider eating sugar, flour, and other foods high in carbohydrates a physiologic precursor to food cravings. Most commonly, the women attribute cravings to negative psychological states, such as boredom, restlessness, a sense of deprivation, disappointment, loneliness, frustration, stress, fear, anger, anxiety, depression, shame, and grief. The women do not identify any positive psychological state as a precursor to cravings. The women usually identify possible

psychological precursors only in retrospect, after having eaten the craved food; at the time of the craving, the women may be aware only of a need for comfort, a desire to feel better, or a sense of emptiness.

Not recognizing psychological precursors at the time of the craving frustrates the women. They reason that identifying the precursor when the craving occurs would allow them to address the psychological state and potentially defuse the craving, thus preventing eating in response to the craving. Three women reported having learned to recognize precursors to their cravings when the cravings occur, and they have been able to manage cravings successfully because of this recognition. The internal dialogue of these three women reflects their efforts to decipher the craving:

> I have to kind of think about what's going on. "Why did I have that thought just now?...Why did that thought come in? What's really going on with me?" Usually it's: "I'm feeling shame about something." "I'm scared about something." Usually fear. Fear of my future, fear of what I am going to do. Or boredom. It could be a lot of things. (Dana, lines 1157-1164)

> I'll do… the HALT method-- "Am I hungry, angry, lonely, or tired?" In a lot of instances, the 'angry' and the 'tired' are things that will trigger a craving for me. If I get into an argument with my kid, I'm angry, I need something to satiate that. (Ava, lines 1191-1195)

One woman has developed what she calls "an awareness voice" (Lily, line 983). The awareness voice helps her respond to a craving by saying, "No, you're not hungry; you just ate lunch. You just really don't want to fold linens" (lines 100-1001).

The women, for the most part, have had to try to figure out food cravings and how to manage them on their own. Most of the women have long histories of dieting; many have used several commercial diet programs and some have used medically-supervised weight loss programs. Four of the women have had bariatric surgery and each states that food cravings were not addressed at all by the surgeons or in the counseling sessions required for the surgery. Only Evelyn recalls any healthcare provider addressing food cravings in any way. She was prescribed Metformin for pre-diabetes in conjunction with a liquid meal replacement program and was told that the drug should help with food cravings. None of the women has ever been asked by a medical professional if food cravings are a problem for her, even when she sought care for weight management.

Some women report that food cravings were not addressed by diet programs and medical weight management programs they have used, while others recall strategies they were taught but which they found to be of no or limited usefulness. The strategies for managing food cravings that women learned through diet programs were: drinking water when a craving begins, waiting 20 minutes before eating the craved food to see if the craving will pass, eating a small portion of the craved food, eating a low-calorie version of the craved food, and eating a healthy snack instead. The women describe the strategies as good in theory, but of limited use in practice. Renée talks about a strategy she learned in a commercial weight-loss program to manage her craving for a favorite dish:

> You would not buy it to take home. You would go to the restaurant, order half of it and give the other half away, and you portion size it so you do not have all of it available to you. (lines 519-523)

Unfortunately the strategy did not help her manage the cravings, because she says she has never had a "half-plate" craving (line 711). Evelyn describes her lack of success with suggestions from the commercial and medical weight loss programs she has used:

> Their suggestions were to keep healthy snacks, to buy… Snackwell types of snacks or keep little bags of stuff that you know how much the calories were. So this bag of-- I don't know-- Gummy Bears, as an example, is 50 calories, or this low-cal Oreos is 100 calories…Weight Watchers, Jenny Craig, and NutriSystem offer snack alternatives that are part of their program. But a Jenny Craig chocolate bar is not a bowl of cereal, it's not a sandwich [foods she craves]… [The suggestions] didn't really work. I mean I might be able to do them like the first week or two weeks but they wouldn't be a long-term solution for success. I would still end up giving in to the craving. (lines 719- 748)

Some women found suggestions to eat small amounts of craved foods to be detrimental. Dana, who has found long-term relief from food cravings by abstaining from sugar altogether, states: "I can't have a little bit of sugar. I can't… It's like having a little bit of heroin to a heroin addict" (lines 705-706). A former smoker and recovering alcoholic, she explains:

> I'd eat a bowl of cereal, sugary cereal like Life with sugar on it. An hour later, my stomach would be growling…sugar, I mean to me, is just like… nicotine or alcohol—the more you put in, the more your body craves… I know that the minute I put some of that stuff in there, that hunger comes back. (lines 977-992)

Pamela has discovered that "… those 100-calorie servings that they have, the 100-calorie Oreos, I cannot eat those. I would start with that first and then want everything else in the house… it's a trigger. It turns everything else on" (lines 43-49).

The women also described strategies for managing cravings that they encountered through trial and error and luck. Hazel was unsuccessful with a strategy she had heard about involving a rubber band on the wrist: "You got a craving, you snap the rubber band to make it stop the craving… I tried it and I just got really red wrists and snapped myself a lot and ate and snapped' (lines 839- 843). On the other hand, Kaye discovered for herself that eating small amounts of food all day helps her to avoid cravings. Lily learned to manage cravings as an incidental result of her practice of yoga, which helped her develop the "awareness voice" (line 983) that identifies emotions that underlie food cravings.

Three of the women were referred by lay persons to 12-step programs for eating disorders where they have developed support for dealing with cravings. Ava says that reaching out to fellow members of her 12-step group when a craving occurs helps derail her craving:

> All I have to say to them is a couple of sentences to them. They know exactly what I'm talking about…They'll offer some bit of diversion or alternative thing to do or, "Instead of thinking about this, why don't you think about this?" That kind of thing… there's not a week that goes by that hasn't happened to me at least three or four times, reached out, needed that and it was there. (lines 585-595)

The women's use of strategies and resources to manage a craving requires effort and is not always successful. A woman's lack of success in using identified strategies to

manage food cravings can reinforce her self-recrimination and sense of defeat: "I would still end up giving in to the craving and there's the beat up part, 'Wow, even with a suggestion I'm not able to say *no*'…whatever angle I took, I still struggled" (Evelyn, lines 749-750). Trying to manage a craving can feel like a fight that cannot be won: "I had to satisfy that craving or continue fighting it. That is what it was—fighting it [and] then just giving up and having it" (Grace, 760-762). A history of failed efforts can cause a woman to become so frustrated that she may give up and stop trying to resist or manage food cravings.

A woman's attempt to manage a craving is accompanied by internal negotiation. The woman negotiates with herself about whether to continue to fight the craving or to concede and eat the craved food. The negotiation may be fairly civil, as in the example of the awareness voice; it may also have an element of self-recrimination:

> "I have been so good this week, and I just deserve this treat…" or…"Yesterday was bad so I might as well just eat whatever I want today." There is definitely that sort of back-and-forth. But then also like, "Gosh, Kaye, get it together. You cannot keep doing this crap." So then you are bullying yourself and, "Forget it. I'm just going to eat." (Kaye, lines 240-246)

The struggle may occupy a woman for an entire day or take place within minutes. If a woman gives in to the craving and eats the craved food, the cycle progresses from the craving phase to the eating phase. The eating phase, and the self-recrimination phase that follows it, are discussed in the next section.

THE EATING AND SELF-RECRIMINATION PHASES OF THE CYCLE

This section follows the progression of the food craving cycle from the moment a woman gives in to the craving and moves on to the eating phase and the subsequent self-recrimination phase. The eating and self-recrimination phases of the cycle are discussed under one heading because the eating phase typically is followed immediately by the self-recrimination phase.

The food craving cycle progresses from the craving phase to the eating phase when a woman concedes to the craving. A woman who has struggled to resist a craving and failed typically concedes abruptly: "forget it" (Kaye, line 246; Pamela, line 1375), "screw it" (Evelyn, line 431), "F-it" (Dana, line 4039), "F**k this sh**" (Renée, line 571). None of the women describes an internal dialogue of simple permission-giving in the moment they give in to a craving. They describe a reluctant, exasperated concession. The women minimize their experience in retrospect by referring to their concession as rationalizing or permission-giving, although at the time concession is experienced simply as a relief from struggle.

Some of the women experience relief from the inner turmoil as soon as they concede to the cravings, even before they obtain the craved food. Their plans to get and eat the food may be made without ambivalence: "I used to go to Taco Bell at night, and it was like, 'Okay, I'm going to get my cheese quesadilla and a couple of bean burritos and my third option, my wild card'—I always got that" (Kaye, lines 753-757). Most, however, continue to experience an internal struggle:

> I will, in the middle of the night, get in my car and go to the service station or Walmart… As I'm doing it, I'm thinking, "This is absolutely insane. This is

> absolutely the last time I'm doing this." There have been times that I'm hating myself as I'm doing it… "It's just this last time and I won't do it again. This will be the only time I'm doing it. The next time I feel this way, I am just going to ignore it." It's almost like, as if I'm outside of myself when it's happening… I'm talking to myself… I'm envisioning in my head the front-page newspaper story of a woman found dead on the side of the road with a bag of Hershey's Kisses and Dove bars and things like that because she went into a ditch on the side of the road and I'm the one. My son reading it the next day in the paper. (Ava, lines 758-780)

Ava describes her feeling about herself during such a drive to purchase craved food as "… loathing. It's like practically self-loathing" (line 803).

Ava's sense of being outside herself when she concedes to a craving is echoed in Renée's description of what happens to her sense of willpower when she gives in to a craving:

> When I give in, it is just like this is part of your brain that just shuts it off and says it is not there. You are not even thinking about it [using willpower]. You are thinking about one thing… The consequences that I know that are because of it, none of that is there. (lines 407-411)

Ava and Renée exemplify the women's experience of a kind of disconnect that occurs when they give in to a craving. They become disconnected, not only from themselves but also from their own interests. They may abandon or defer existing plans and commitments. They may disregard their own safety, as Ava did by driving to Walmart in

the middle of the might. When asked if she ever had concerns about her safety when going out to get craved food, Kaye responds:

> I can't remember an incident, but yeah… I would have been willing to put myself into actual-- like not into the best part of town. But if I am hungry, you know, I got to go, I got to go. It does not matter where I am. "I need to stop here." … I know that I would have made unsafe decisions about where I am going as a woman at night. (lines 781-789)

When conceding to a craving, a woman thus can be disconnected from her better judgment not only with respect to eating, but also about her safety.

Most of the women offered only bits of information about actually obtaining and eating craved foods and the amounts of craved foods they eat. One woman, Evelyn, gives a full description of the progression through the food craving cycle including obtaining and eating a craved food. She also describes the internal dialogue that takes place during the cycle. Evelyn's description offers a point of departure for discussing the experiences of the other women so she is quoted at some length here:

> If I don't have what I'm craving then it lingers. I'll keep thinking about it until I finally eat it or I finally get it and then it's like "Oh wow, this is really great." When I do finally eat what I'm craving it will be one of two things. It'll be "Oh, my gosh-- I can't eat you fast enough" and I'll just gulp it down like the Cookie Monster, or I will truly take my time and savor every single bite. More often than not it's the Cookie Monster effect that happens, although I do do the other one where I'm really savoring it, but more often than not it's the Cookie Monster gobble down. I don't really crave things that are healthy for me. [laughter] That's

bad but I don't. I don't find that I have cravings for certain beverages necessarily; mainly foods. Every now and then I will have a craving for something sweet. I don't usually have a craving for something sweet, but I will. The most recent one occurred yesterday. I wanted something sweet like a Twinkie or half a donut or cookies or something sweet and I didn't have anything in the house that met that requirement. So I literally sent my husband out to go buy some Twinkies. He bought some Twinkies and that's what I had. In that particular instance it's hard to satiate the craving. I won't just have one Twinkie. I'll have two or three. But it'll feel so good when I'm eating it. It's almost a sense of love, almost. Like a nurturing, like I'm caring for myself if that makes any sense… After I eat it -- for instance yesterday, I had three Twinkies. I felt full, kind of like I had overeaten. I was bothered by that sensation of being full, of being bloated. So now I'm aware that I have a sense of fullness then I begin to get irritated with myself and I feel guilty. And I think "Oh why couldn't I just have one; why did I have to have three? I should have just eaten one." And so I go into this cycle of "I have no self-control" …like, "I had to eat three—why? Why? That doesn't seem right. I should have eaten one but I ate three." So then I start to feel guilty and I start to feel "Gosh, I shouldn't have done that" and then I start kind of beating up on myself a little bit about how I have no self-control and how I should have only had one. And, "Well no wonder you struggle" and so it starts this vicious little cycle in my head… the other person in my head is telling me "You should never have done that; you ate too much" or the other Evelyn in my head is telling me that I overdid it, I shouldn't have done that and all the negative "No, you shouldn't have done

> that; no wonder you're overweight. Look you can't even control yourself around food. They were just stupid Twinkies anyway, it didn't really taste all that great" and so I go through this whole beat myself up kind of thing. And it may last for 30 minutes to an hour. I mean I'll be playing on the computer or watching TV and nobody would know the wiser, but if you were in my head then you'd hear this little recorder that goes on and on and on about how I have no self-control and I gave into *Twinkies*-- really? So that's what happens to me. (lines 40-104)

Evelyn further describes the internal dialogue beginning with her experience as she eats the craved food and progressing to self-recrimination:

> Once I eat it the first immediate wave is a sense of "Oh wow, this is so good," "Okay-- just hits the right spot…" Just kind of "Oh wow, yes this is great; this is perfect." It's just really great, and maybe euphoric kind of, you know? And then, after, as I'm getting to the bottom of the bowl of cereal or I'm finishing up the second donut or something to that effect then reaching for the fourth cookie or something like that, I kind of begin to-- doubt enters, "Oh, should I have done that?" "I don't know." So I go and I wash the cereal bowl and I quickly put away the donuts and I quickly hide the cookies or whatever and then I walk away from the kitchen. And now I'm sitting there watching TV or folding clothes or I go busy myself with something else. And then it's like another voice, "You shouldn't have done that… You walked today and here you are -- you only walked 170 calories, that donut alone was 170 calories. So now I'm in positive calories again." So whatever the scenario I start playing this recorder. (lines 185-202)

Evelyn elsewhere describes the critical voice as "sarcastic and cruel" (line 210), and characterizes her internal dialogue of self-recrimination as "torturing myself" (line 118). When asked whether the other person in her head tells her what she should have done instead of eating in response to the craving, Evelyn responds, "No, oddly enough it doesn't. It doesn't offer any alternative or a healthy version of what I should do to handle my craving… It only leads me to feeling bad that I overate with my craving" (lines 108-112).

Evelyn's description touches on aspects of eating and self-recrimination also described by the other women. Each of these aspects will be discussed in the order in which they occur in the craving cycle: getting the craved food, eating the food, and the effects of eating the food, including self-recrimination.

Evelyn's craving was specific enough that nothing in the house would satisfy it. The craving was so insistent that she let her husband know about it and sent him out to get the craved food. Other women spoke of cravings so specific that they became anxious if the right food was not in the house. Evelyn allowed her husband to know that she had a craving and involved him in getting the food, but she prefers privacy in eating the craved food: "[When] I'm craving and I give into that craving I prefer to eat by myself. I don't want anybody else sitting at the table with me" (lines 281-283). Three other women occasionally allow their husband or other family members to know they have a craving and are planning to eat the craved food. Two of these women have asked their husband to get the craved food. None of the women reported letting anyone other than their husband or an immediate family member know about their cravings.

Like Evelyn, who prefers to eat craved food alone, all of the women maintain secrecy, or at least privacy, about their eating. Hazel occasionally lets her husband or children know when she has a craving but she does not let them see how much or how often she eats in response to cravings: "… I had gastric bypass so I eat in small spurts so I don't think anyone ever quite figured out how-- Everyone can't actually see how much I actually eat but it's a lot" (lines 379- 382). Women may maintain almost complete secrecy about their eating:

> I could be in front of a bunch of people and not eat. I'll go to the buffet table or the potluck dinners that we all have… I'll take one little thing of everything and that's it and I'm fine. I'm good because people are with me and they're seeing me. Most of what I do, I do in secrecy. They don't realize that I'm an entirely different eater away from people. There's a lot of the eating that goes on that is totally even my son doesn't even know that I'm eating and the amount of food that I'm eating. I eat alone a lot. A lot. (Ava, lines 561-570)

Some women report openly eating craved food with family or friends who are "in the same boat" (Renée, line 780) while hiding their eating from others:

> My family and my husband are the same [as me]. I do not have to hide what I am eating [with them]… The only time I felt like I was hiding it, is when I was around people who I'm normally not around. Like let's say my friends. We go out to eat or something. I will eat normal in front of them, but I am still wanting more of that type of food, or more of something. Then I will get it on the way home… (Grace, lines 89-97)

The women experience secrecy and shame as intertwined aspects of the experience of eating in response to cravings: “There was the shame of doing it [eating in response to cravings]; the shame of doing it and wanting to conceal that from people; and also [secrecy] just being sort of necessary to the process anyway” (Kaye, 508-511).

Evelyn reports changes in her speed of eating when eating in response to craving, usually gulping the food but occasionally eating slowly to savor the experience. Descriptions by other women suggest that, like Evelyn, the women may change their speed of eating when eating in response to craving:

> I think that there has been probably research done in that it takes so many minutes after you’re full for your body to really know it’s full… If you eat as fast as I do, you could be eating past that. (Ava, lines 1245-1249)

Hazel, on the other hand, describes how she eats a craved food slowly: “I like taking one chip out and eating it and then taking two and then one” (Hazel, lines 161-166).

Not only is the speed of the women’s eating affected when the women eat in response to craving, but also the amount of food eaten. Evelyn reports eating three Twinkies. A few other women volunteer examples of the amounts of food they eat in response to cravings. Pamela reports eating ten 100-calorie packs of Oreos in one or two days (lines 1481- 1482). Kaye states “I just cannot even wrap my mind around how much I used to eat” (lines 750-751). She gives a sense of amounts she regularly ate:

> I would go [to the convenience store] and I would get a turkey sandwich, couple of bags of chips, some peanuts, something to drink and-- this is how I know that eating, that the kind of problem I have and had with food is a disease: because, who buys sushi from [the convenience store]? And, I used to eat it, it would be

> horrible, I would hate it, but it did not matter, because that is what-- I needed all of that. (lines 1085-1091)

None of the amounts of craved food the women describe eating would be considered moderate.

Most of the women report an uncomfortable sense of fullness after eating the craved food. Many of the women eat to the point of physical discomfort or pain, needing to lie down, or needing to vomit. The women overeat craved foods despite other immediate adverse consequences. For example, women who have had gastric bypass surgery experience violent diarrhea, or dumping syndrome, when they overeat foods containing sugar; one of these women also experiences tachycardia after she eats sugar, with a heart rate of 150-170 for up to two hours. Hazel experiences frequent headaches due to craving and eating migraine-triggering foods.

Craving and eating a food does not require that the food taste good, as indicated by Evelyn's eating three Twinkies that "didn't really taste all that great" and the example of the "horrible" sushi described above. Even so, most of the women feel a degree of satisfaction in eating the craved food although for most of the women the satisfaction is brief, even fleeting: "I can get the bag of chips and then still after the bag of chips still feel the empty feeling that I had before the bag of chips. It's so fleeting, the satisfaction that you get from it" (Ava, lines 139-142). Some women report getting no satisfaction from eating the craved food: "It doesn't make me any better and it makes me mad at myself for doing it" (Pamela, lines 404-405); "It makes me feel worse because then I've eaten, damn it, and I'm already fat and don't need to be any fatter" (Hazel, lines 93-94). Other women have the experience that, rather than relieving the craving, eating the

craved food feeds the craving. Evelyn, for example, originally craved "a Twinkie or half a donut or cookies" (lines 53-54) but ended up eating three Twinkies. Pamela describes how eating one 100-calorie Oreo pack triggers her to eat more (lines 43-49). Lily, who gets no relief from the craving by eating the craved food, describes a relentless dissatisfied voice that accompanies her eating craved foods:

> The voice is saying, "What am I going to eat next?" while I'm still eating what I'm eating… I'm eating chocolate and it's saying, "Ooh, what could we have after this? We can have another piece of chocolate" or "Oh, there's ice cream in there." (lines 869-873)

Although all of the women experience internal dialogue during their struggle with the craving and after eating, only Evelyn and Lily describe any internal dialogue during eating. Kaye was asked if the bullying voice that accompanied her craving continued to bully her while she ate; she responds:

> If I am lucky, no. You know, you can try to shut it off. Usually, it would not be during the food session, it will be afterwards. Like, "You are just such a fat-ass. You could not even pull it off [staying on a diet]." (lines 251-254)

Thus the discord of the internal dialogue is temporarily suspended for some of the women when they eat in response to food cravings.

The internal dialogue returns after eating as a dialogue of remorse and self-recrimination. Most of the women ask or demand of themselves, "Why? Why?" "Why did I do that?" or "Why the *hell* did I do that?" The women's internal dialogue becomes sarcastic, cruel, and self-flagellating; they beat themselves up for having no self-control, they torture themselves, and call themselves names. Ava describes the negativity that

follows eating in response to cravings: “The craving is gone but the feeling of craving has now been replaced with shame and guilt and absolute self-loathing. ‘You did it again,’ that kind of thing… I’ve replaced one negative thing with more negative thinking” (lines 896-900). Dana describes intense self-hatred: “There’s so much self-hate. No matter how good the food tastes, the feelings I get about myself are horrible. I become suicidal a lot of times” (lines, 420-421).

Only two women report occasionally being free of this intense self-recrimination. Each of the two women experience cravings as a compulsion that gives them no alternative but to eat. They recall even after eating the sense of compulsion that accompanied the craving and do not reprimand themselves for eating because they felt they had no choice but to concede to the craving. Unlike these two women, the other women appear to forget after eating craved food how insistent the craving was and they believe that they could and should have resisted. No voice appears that recalls the obsession or compulsion they felt minutes before, or the struggle they may have put up before conceding. The women believe they should be able to understand and control their behavior in response to craving. They retrospectively attribute the craving and the eating to precursors they believe they should have recognized and addressed as the craving occurred. Nevertheless, the internal dialogue of self-recrimination, as in Evelyn’s case, does not suggest what the alternative to conceding to the craving might have been. Self-recrimination brings no new resources the woman might use to resist the next craving; it provides only remorse, self-hatred, and shame. If the women are correct in believing that negative emotions contribute to cravings, self-recrimination is more likely to perpetuate

than to resolve the cycle of cravings; thus shame, self-recrimination, and self-loathing reinforce a self-defeating and toxic internal dialogue.

THE QUIESCENT PHASE OF THE CYCLE

Eating and remorse are always followed by a period of quiescence when the women experience no cravings or their cravings are milder and can be ignored more easily. Despite the quiescence of the food cravings, the women's lives continue to be affected by the food craving cycle. Ava describes the self-loathing that results from eating in response to food cravings as pattern of negativity that "can envelop and affect every other area, every relationship in my life… because if I'm that way with me how could I possibly be anything other than that with others?" (lines 842-845) Hazel described lifelong friction with her mother over Hazel's weight, the enduring effects on her mother's criticism on Hazel's sense of self-worth, and Hazel's ongoing weight problems. She commented:

> I know this is so far off of what you're asking about food cravings but maybe it's all tied together… You can't just isolate and say "I have a food craving, period" … I have a food craving but it's so tied into everything else in your life. It's not just an isolated thing that happened… It's tied into everything. (lines 517-525)

Further describing the problem of food cravings, Hazel states: "It's huge and you don't want it to be… It becomes overpowering" (lines 787-790). She cried while telling her story, but she also laughed, commenting, "You have to [laugh] or you're going to cry all the time" (line 577).

Food cravings directly affect other important areas of the women's lives. They affect the women's projects and commitments when getting and eating craved food takes

priority over other plans. They jeopardize a woman's safety when she seeks craved food in the middle of the night or in an unsafe neighborhood. They even can affect a woman's sense of her relationship with God:

> I know that it is my God conscience talking to me: "Well, you really shouldn't be doing this. This is something that's hurting you. When you hurt you, you hurt me." The one I want to hurt the least is God. (Ava, lines 827-830)

All of the women experience food cravings as inextricably, immediately intertwined with their overriding concern about their weight. Geri exemplifies the inseparability of food cravings and weight concerns. She is asked to talk about her experience with food cravings and she asks for clarification, saying, "So just talking about being overweight in general?" (line 18) Ava refers to the interrelated problems of food cravings, eating, and overweight simply as "the food thing" (line 36). Kaye reflects the sense of defeat that accompanies the intertwined problems of food cravings and weight, describing the relationship as:

> … a lifelong struggle with cravings and the resultant ever-increasing weight. I had very few periods of time when I was going in the right direction. So I guess for me what cravings meant were just a sort of powerlessness to stop the trend of gaining weight which I think I had the expectation would be ongoing until death. (lines 72-78)

The weight problems which are so connected with food cravings affect the women's wellbeing in other ways as well. The devastating effects of obesity on their self-worth, continually reinforced by the toxic internal dialogue, were discussed earlier in the sections on Stigma and Difference. Added to these effects is the toll of repeated attempts

at weight loss and the disappointment, demoralization, and shame of repeated weight cycling. The women's wellbeing also is impacted by the significant health effects of obesity; the women variously reported hypertension, diabetes, sleep apnea, difficulty with physical activity, and orthopedic problems, including one woman's need for knee replacement surgery. The women's struggles with weight have been costly. Many have paid for multiple weight-loss programs. Women who have sought medical attention, counseling, or surgery have had expenses associated with their treatment. One woman almost died due to surgical complications of her gastric bypass and was in intensive care for more than a week. Moreover, continually losing and regaining weight has required some women to purchase several wardrobes.

Thus, even when the women are in the quiescent phase and are not experiencing the distress associated with the food craving cycle's acute phases of craving, eating in response to craving, and remorse, the food craving cycle has significant chronic effects on various aspects the women's lives. The period of quiescence does not represent a resolution of the cycle but only a period of calm during which the women remain susceptible to the recurrence of craving and the full food craving cycle. All but two of the women have had at least one period of a year or more in which cravings were absent or easily managed and later experienced a recurrence of cravings. Each of the women who is currently in a prolonged quiescent period is aware that cravings can recur. Kaye has had relief from cravings for over two years; she states, "I am in remission, I am in remission right now, and the remission may last for the rest of my life, but there is no guarantee." (lines 858-860) The women can be seen not as having escaped the food craving cycle, but as remaining in a phase of the cycle, the quiescent phase. Because the

women either remain in the quiescent phase or have a recurrence of cravings and move into the craving phase, the women are always in some phase of the cycle, making the food craving cycle a chronic problem.

The word "remission," as used by Kaye in the quotation above, is an apt word for a prolonged quiescent state because, as will be seen in the next section, prolongation of quiescence to periods of several months or even years has been achieved by the women only through intervention or sustained action on their part. Without effective action or intervention, the quiescent phase typically lasts mere hours or days. Without long-term remission, the women sooner or later move from the quiescent phase to the craving phase of the cycle and their struggle to break the food craving cycle continues. The means by which the women have attempted to break the cycle are discussed in the next section.

BREAKING THE CYCLE

The women wish to be free from their struggles with food cravings and the weight problems and shame that are so intimately bound with food cravings. Nevertheless, although all of the women readily answered "yes" when asked if they ever have had problems with food cravings, only one had specifically sought ways to address food cravings as a problem. Instead, the women's efforts to manage the problem of food cravings have been incidental to their attempts to manage their problems with weight. Therefore, much of the discussion in the following section will refer to weight loss methods, describing the ways in which these have, or have not, helped the women to break the food craving cycle.

Weight loss efforts and the food craving cycle

As mentioned in the previous section, only long-term remission of food cravings has resulted in significant weight loss for any of these women. Evelyn lost 110 pounds when she achieved remission through a liquid meal replacement program in conjunction with the drug Metformin. Her food cravings returned when the medication was discontinued; she transitioned back to solid food and regained all the weight she had lost. Lily lost 100 pounds using prescribed diet medications that reduced her appetite and food cravings; once her medications were discontinued, she too regained all the weight she had lost.

Three women who had bariatric surgery several years ago initially experienced a remission of food cravings but the food cravings returned 18 months to three years after surgery. Each of the women whose food cravings returned some time after surgery has regained weight to the point where she is again dissatisfied with her weight. Two of these three women mention the amounts of weight they regained: 50 and 60 pounds. Kaye, who had bariatric surgery just over 28 months ago, has not experienced food cravings and she is currently maintaining a weight loss of more than 170 pounds. Bariatric surgery appears to prolong the quiescent phase of the food craving cycle, although its effect may be temporary.

Dana, Lily, and Grace, who have not had weight-loss surgery, have been able to prolong the quiescent phase using meal plans that limit carbohydrates and /or eliminate refined carbohydrates entirely. They have lost 75, 130, and 210 pounds, respectively. Each woman supports her commitment to the meal plan either through a 12-step program or the philosophy and practice of yoga. The approach of the women who limit

carbohydrates differs from typical diets in that the women, having achieved or nearly achieved goal weights, intend to continue use of their meal plans rather than return to a more carbohydrate-rich diet. Each believes that a return to a carbohydrate-rich diet would reawaken her food cravings. Kaye, who remains cravings-free 28 months after her bariatric surgery, also limits her carbohydrate intake. It appears that carbohydrate restriction may prolong the quiescent phase. None of the women whose cravings returned after bariatric surgery reports having limited carbohydrates long term.

All but one of the women have used multiple diets. Kaye, the exception, gave up dieting when she was young woman because she found that dieting made her food cravings more intense. Most of the other women have used both fad diets and more established diets, including commercial weight-loss programs and diet books. The women report that dieting perpetuates their preoccupation with food, in part because of a sense of deprivation and also because of the constant planning and preparation of the food required by the diet. Preoccupation readily becomes craving; thus, dieting typically does not reduce cravings. On the other hand, Evelyn reports that a carbohydrate-restricted insulin-control diet reduced her food cravings. Evelyn's diet was similar to the carbohydrate-restricted plans used by Dana, Lily, Grace, and Kaye. She lost some weight but when she began eating more carbohydrate-rich foods she regained the weight she had lost. Evelyn did not have a program or practice like those used by Dana, Lily, and Grace while she was on the carbohydrate-restricted diet, nor has she had weight-loss surgery. The only women who currently are in long-term remission of food cravings are those who both limit carbohydrates and have significant structures in place to support their

food choices either in the form of surgery or of regular practices that support adherence to the meal plan.

Defusing shame and self-recrimination

Actions taken during the quiescent phase that are not directly related to weight loss efforts also can attenuate the food craving cycle. Many of these actions counter the shame and self-recrimination that are typical of the food craving cycle.

Some of the women, despite their shame, have discussed their overeating with someone by whom they felt accepted. A sense of acceptance by other persons appears to defuse some of the women's secrecy and shame. Some of the women have been able to seek help from people who themselves do not struggle with cravings. Grace talked to her sister-in-law, who helped Grace by finding the 12-step program that has helped Grace reduce her cravings:

> I had started trying to lose weight again for the thousandth time [but] I had started gaining weight again. I had given up again. She found [the 12-step program]… She was like "Okay, this is something that you might need to do." Because she said she knew-- she tells me that I am a totally different beast than she has ever met before… because she has grown up with big eaters. She has grown up with people who like sweets. [But] she has never known anyone who has the emotional connection with the food like I do. Because that is something that she never knew. She never knew someone who could literally hate herself for eating something she is not supposed to, or who will think about food all day long like I did. (lines 513-536)

Pamela felt accepted by her husband regardless of her weight or her eating patterns and was able to enlist his aid to do a "study" (line 1483) of her consuming multiple 100-calorie packs of Oreos. Together, Pamela and her husband realized that she only overate Oreos when she did not eat protein first. With this finding, she has been able to avoid eating multiple packs of Oreos when she craves them by eating protein first. Lily's non-judgmental yoga coach guided Lily in examining her food choices and in developing the awareness voice that has helped Lily manage her food cravings.

Some of the women also have found it helpful to talk with other people who have had problem food cravings. The women who participate in 12-step programs can speak freely about their cravings and eating with fellow members of the group; each of the women has had some relief from their shame and isolation and has had partial or near-total relief from cravings. Dana describes her experience of finding other people who understand:

> I can't talk about it with my boyfriend… But there's people that I can really relate to… people that just really know what I'm like. That is a miracle. I felt that the very first time I walked into a [12-step meeting]. Finally somebody understands me. I just broke into tears. I cried for two years; every time I shared just about. I got so emotional because I just couldn't believe it… I'd go, "I just can't believe that you just talked about what I've been feeling for so long." It would just bring tears to my eyes every time because I just couldn't believe it. (lines 1169-1182)

Ava speaks of the comfort she finds knowing other people who have experiences similar to hers and with whom she can talk about her struggles:

> I think what gives me the most comfort is knowing that I'm not alone in it. That it's not just me that's like this. That there are other people that're dealing with the same issue as me. Hearing other people's stories, their successes, other people's stories of how they go about battling some of this… why we turn to it, and the struggle. It's a comfort to know that I'm not alone and that there's somebody else that I could talk to and that they care what I'm talking about. (lines 422-430)

Simply knowing that people who do not have problems with food cravings have problems that are similar can help reduce the shame and self-blame that figure so prominently in the craving cycle. Lily's use of mindfulness meditation and yoga have given her the perspective that the human mind is a restless, craving mind, and that her struggle with cravings is not unique to her but is a part of human nature. This perspective has allowed her to stop blaming herself for her struggles. Self-forgiveness was crucial to her progress:

> … until I could accept myself and forgive myself I couldn't -- I just couldn't move forward. You can't… you're hating yourself and you're dealing in this kind of self-destructive pattern-- forgiveness just opened everything and it started to change everything for me. (lines 135-139)

Shame and self-blame may keep a woman from turning to others for help or support. Shame perpetuates secrecy and fear of rejection, while self-blame reinforces the belief that conceding to cravings is simply a personal failing that should be countered by self-control or willpower. Renée provides an example: she thinks, as do the other women who have not developed self-forgiveness, that her problem with food is a weakness and indicates a lack of self-control. When asked if there were anything she wished other

people understood about the experience of cravings, Renée stated that she would not see the point because she blames only herself. She had never spoken with anyone about cravings prior to participating in this study.

Many of the women who have decreased their shame and have developed a degree of self-acceptance have done so with the help of practices promoting spiritual development. Lily has cultivated spiritual growth and self-compassion through the philosophy and practice of yoga. Geri has cultivated self-acceptance through creative writing and active involvement in a church that focuses on compassion. Ava, Dana, and Grace cultivate self-acceptance through 12-step programs derived from the Twelve Steps of Alcoholics Anonymous, a practice based on spiritual principles. Ava describes one way that self-acceptance helps her:

> … a pattern that I've had in eating, that if I messed up one meal that means the rest of the day is messed up. That's not necessarily the case… I can make my next meal be a sane meal… [I used to think], "You blew the day so you might as well just eat crap for the rest of the day." It doesn't have to be that way… "Okay, so I messed up before. I can't change that…What I can do is, on my next meal, eat sanely." (lines 1064-1077)

Self-acceptance helps the women rebound from slips which otherwise might lead them to abandon of their intention to eat "sanely." The women's acceptance of their own imperfection counters the punishment of the self-recrimination phase. The women who have sought self-development through counseling or psychotherapy do not express a similar degree of self-acceptance. One woman specifically mentions that years of counseling have not helped her develop a sense of compassion for herself.

Managing the preoccupation with food

The benefit to the women of the practices described in the previous section may go beyond self-acceptance. The women's practices occupy their time and energy so may be replacing some of their preoccupation with food. Refocusing the preoccupation also has proven useful. Kaye, for example, continues to be preoccupied with food, but she has been able to refocus some of the preoccupation toward planning and preparing food appropriate to her needs:

> I love it. It is like a ritual. I really, really look forward to Sundays when I get to boil my eggs for the week, and I have got it down to a science where like I do it, it is going to be 8 minutes and then you cover them, and then you take them off and you got to get them in cold water real quick. I look forward to deciding what I am going to eating for the rest of the week, and like preparing it… I will prepare all my food for the week on a Sunday. And, then I just like to look at it. Like, okay, here it is, we are all set. I mean, it sounds a little bit crazy, because why do I think that I am going to starve to death, but I think there is part of me that is… really freaked out at the prospect of getting hungry. I think part of it is because I know that if I get hungry, if I let myself get actually hungry, I am going to eat whatever I feel like, whatever I am craving. So, part of it is like it is the enjoyment of the ritual of going grocery shopping, boiling my eggs just so, cutting the tofu so it has got a perfect right angle… I do not think it is any less crazy. It is certainly not less obsessive, but it is more compatible with staying thin. (lines 426-444)

Kaye also occupies herself with regular physical activity, working out at the gym on weekdays and training for and running 5K races on weekends, an interest she has developed since her bariatric surgery.

Sustaining practices that support remission

The actions taken by the women who have achieved remission appear to weaken their food craving cycle by reducing the occurrence of cravings and their intensity. Actions that weaken the food craving cycle require considerable sustained effort during the quiescent phase of the cycle. Dana attends a 12-step meeting almost every day; Grace attends at least three times a week and makes phone calls to fellow members every day. Despite the effort involved, the women did not describe their efforts as difficult or onerous. Kaye takes pleasure in preparing her low-carbohydrate, high-protein meals; Lily speaks with passion about her yoga practice and is working on becoming a yoga instructor; Ava, Dana, and Grace enjoy their 12-step meetings and the fellowship they find there.

Some of the women describe cravings as preoccupation, while others describe preoccupation with food as a background from which cravings arise. Thus, finding constructive sustainable ways, such as those described above, to replace or refocus their preoccupation with food may be necessary for the women to prolong the quiescent phase of the food craving cycle. Some of the women occasionally have found themselves replacing the preoccupation in unsustainable ways. Dana at one point managed her preoccupation with food by chewing sugar-free gum so obsessively that she damaged her teeth. Geri and Grace turned to shopping and overspending to deal with the emptiness or

uneasy emotions they previously had tried to address with food; they each express a desire to reduce their spending.

Figuring it out without help from professionals

The women speak of struggling for years, even decades, to figure out for themselves what strategies and resources to pursue. Hazel, Pamela, and Geri each had dieted off and on since childhood before having bariatric surgery in their 40s. Ava, Dana, and Grace were in their 30s when they entered 12-step programs for eating disorders. Grace, Dana, and Lily were was 35, 52, and 58 when they found their limited-carbohydrate meal plans. Of the women currently in long-term remission, only Kaye was relatively young, 26 years old, when she found the resources and strategies that are working for her.

It has not been lack of effort or of knowledge that has caused the women to struggle with cravings and weight problems for so long. Most the women are veteran dieters and many are health professionals; all are well-versed in the basic principle that reduction of caloric consumption below the level of caloric expenditure is required for weight loss, but most have been unable to implement this principle long-term due, at least in part, to food cravings. Nevertheless, Pamela and Lily each found that even when they were able to reduce their caloric consumption below expenditure, they were unable to lose weight. Lily consulted her physician when she had lost no weight after six months on a 1200-calorie diet. Her physician only chastised her, citing the "calories-in/calories- out" (line 200) principle of dieting and suggested she was lying about her caloric intake. Lily found through trial and error and her own research that attending to the type, and not just the amount, of calories she consumed made a difference; she was able to lose weight by

limiting the proportion of carbohydrate in her diet without further reducing her overall caloric intake. Pamela concluded from reflection on her own experience that "white foods" (line 573) -- sugar, flour, rice, and potatoes-- cause her to have an exaggerated insulin response which increases her cravings. Dana also concluded through trial and error that her body responded to some foods differently than to others:

> I'd eat a bowl of cereal, sugary cereal like Life cereal with sugar on it and an hour later my stomach would be growling. I eat fewer calories than that now, but I if I eat a couple eggs and a piece of fruit, I'm not hungry again for three or four hours. (lines 976-980)

Dana and Lily now limit carbohydrates based on their observations of their unique responses to food. Each is in remission from food cravings and has lost significant amounts of weight. Pamela, however, has not found resources that support her in avoiding white foods long-term and continues to struggle with food cravings.

Three of the four women who have found that they experience reduced cravings when they limit carbohydrates have concluded that they are food addicts. Each of these women reports having had symptoms of withdrawal when she first limited carbohydrates. Grace describes how she came to view herself as being addicted to sugar and refined flour:

> By abstaining from it. Because I knew I had cravings before, but I did not know how bad it was until-- and how physically addictive it was-- until I got off of it… the first week or so of not having the sugar and the white flour, my body was actually detoxing from it. I was moody and headaches and things. That was the first eye opener that I am really am addicted to these things and my body is

> addicted. Because even when I was told [detoxing] was going to happen, I did not believe it… But when my whole – my body was physically reacting to not having it, that is when I knew that [I] was really addicted and craving things (lines 158-169).

Lily describes having to struggle through three days of "cold turkey" (line 261) to return to her limited- carbohydrate diet if she has eaten carbohydrate-rich food. Dana describes her own withdrawal as being intense for the first two weeks to one month, and continuing for a full three months:

> The sugar was probably the hardest thing, you know. And the same thing happened to me with alcohol. For me it takes about 90 days. There's something about… getting through that three months when you realize, oh my God! I didn't think about it today. Because that's what I have to do is just, I have to know that I'm going to think about it, know that I'm going to want it, and I just can't act on it. And, it's going to drive me crazy. I'm going to be a bitch. People around me have to be warned [laughter]. (lines 158-164)

The women who identify themselves as food addicts have found the parallel between substance abuse and food cravings to be more meaningful and less frustrating than have the other women. Each has identified particular substances to limit or avoid altogether in order to avoid cravings and withdrawal. Dana and Grace support their abstinence from refined carbohydrates using the 12-step model of recovery that also is used by recovering alcoholics and addicts.

The women who have come to view cravings as a phenomenon based on metabolic or addictive responses ascribe cravings, at least in part, to physiologic causes.

Kaye suggests another physiologic link. She states that her ability to prevent cravings by avoiding hunger is supported physiologically by the type of bariatric surgery she chose. Kaye chose the "duodenal switch with gastric sleeve," in which the stomach is reduced to a narrow tube. She explains that removal of the remainder of the stomach reduces the secretion of ghrelin, a hormone that contributes to hunger. She chose the duodenal switch with gastric sleeve because gastric bypass, the alternative, leaves the stomach in place and so would not be expected to reduce ghrelin or to have a lasting effect on hunger signals. Kaye finds the reduction of hunger to be desirable because she considers hunger to be a precursor to cravings. The other three women who had bariatric surgery had gastric bypass and their struggles with cravings and weight gain have resumed.

Other women report physiologic conditions that appear to affect cravings. Hazel sometimes experiences migraine aurae as sudden cravings for food which are more intense and less specific than her other food cravings. Renée first experienced cravings when she developed hypothyroidism. One of the women recently was diagnosed with bipolar disorder. Her doctors trace her bipolar symptoms back to her teen years, the period when the food cravings she has had since childhood intensified. As her bipolar symptoms have stabilized with medication, her cravings have become somewhat more manageable.

Each of these women suggest that discovery of a physiologic basis to cravings might help her by pointing toward effective treatment and might relieve the stigma and shame of having weight problems that many attribute to personal failings. Nevertheless, treatment of Hazel's migraine disorder and Renée's hypothyroidism have not provided relief from their cravings, and the treatment of another woman's bipolar disorder has

provided only partial relief. Each of these women continues to see her eating in response to cravings as a personal failing. Thus, even with identification of physiologic causes, self-blame may persist.

Few of the women have found meaningful help from the sources to which a person would be likely to turn for resolution of weight and eating problems: diet programs, healthcare providers, and counselors. While Kaye's gastric-sleeve surgery and another woman's ongoing treatment for bipolar disorder may hold promise for sustainable long-term results, medical interventions received by the other women were implemented with the knowledge on the part of both the physician and the woman that the intervention or its effects likely would be temporary. Women experienced reduction of cravings with Metformin and with appetite suppressants, but these medications were prescribed short-term to support weight loss and not to support the maintenance of a reduced weight or remission of cravings. Women underwent gastric bypass surgery with the knowledge that results are commonly only partial or temporary. Despite the known limitations of bariatric surgery, Grace's physician's only solution to her weight problem was bariatric surgery:

> Every time I went to the doctor, they always said "You need to lose weight." The only time one doctor actually said anything about actually doing something was when she told me I should have gastric bypass or some type of bariatric surgery. (lines 234-237)

Grace states that doctors seem unaware of any solution other than surgery. When she lost 210 pounds using her limited-carbohydrate meal plan in conjunction with a 12-step program, her primary care physician assumed she had had bariatric surgery and expressed

skepticism that Grace had lost weight without surgery, even to the point of suggesting that Grace was lying.

The doctor who prescribed appetite suppressants for Dana admitted he could not offer a long-term solution:

> I went to this doctor, and I can remember he had this big ol' beard. He looked like Santa Claus. He was obese. He said, “Yeah. I've gained and lost 1,000 pounds in my life, and this [taking pills] isn’t the answer. But I'll give it to you for a while and let you try it and see if it works.” … It was bizarre going to him for diet pills… He said, “Here. I'll give you 30 pills for 30 days. And that's all I'm going to give you. Don't come back for more. I'm not going to give you any more… That's not the answer.” He didn't tell me what the answer was, but he said, “This isn't the answer.” (lines 634-651)

Other doctors gave Dana advice that she believes not only is unhelpful but also counter-productive:

> Especially this doctor that I had in [city], he just believed in the calorie thing, where you can eat a little bit of [any kind of food]. Just you can't eat a lot. He'd sit there and lecture me like I didn't know anything, and I'm just like, “You have no idea… Would you just stop?” I said, “I can't have a little bit of sugar. I can't have a little bit of sugar. It's like having a little bit of heroin to a heroin addict.” (lines 700-706)

The women express frustration at the apparent limits of healthcare providers in dealing with weight problems and understanding the women’s struggles. Kaye finds the advice of doctors useless and shaming:

> It is just "Here are the recommendations from the FDA [sic]…Go forth and prosper." Thanks, throw that away on my way out, where is the trash can? Yeah, it has never been solution-oriented. Nobody ever lays out a path or something. I do not know, they are like, "Here is A and here is B and you just have to figure out how to get there. Why can't you get to B? Hurry"… I definitely felt ashamed being around doctors and having them show me the food pyramid kind of thing. Like, "Oh, here, I am going to change her life. She has never seen this before." (lines 1017-1033)

Grace wishes that health professionals would consider that some obese persons might be food addicts: "Not every person who has a weight problem is addicted to food. That is not true, but that could be [the problem]." (lines 419-421) She states that food addicts are unlikely to succeed with the only intervention she herself was ever offered by a medical professional:

> I know a lot of people who have had [bariatric] surgery. Until they get the addiction down, that surgery is not going to do anything. They are just going to continue eating the way they have been, having surgery and then just gaining all of the weight right back. (lines 771-776)

Grace would like medical professionals to identify and provide appropriate resources for patients who might be considered food addicts:

> I would want them to know and to tell their patients that it is not normal [to have cravings and a preoccupation with food]. Not everyone has them. There is a difference between the normal "I am pregnant. My baby feels like having this. I want it" than the obsession that I experienced. The control that the food had over

> me. If I do not have it, I am going to keep thinking and thinking about it. If I am eating something, I am thinking about what I am going to eat next. Or, the emotions, and feelings, and things that come with food. That there is help out there. There are programs that they should tell people about. Because I have never once had a doctor tell me about any of the [12-step eating disorder and food addiction] programs, or anything like that. I never had a doctor once ask me, "Do you think you have an addiction to food?" … if I came in as a smoker or a drinker, they would know where to send me. Or, how to get me help. With food it was never offered, never talked about or told about. If somehow doctors everywhere would know that there is help for people and that food is actually an addiction, that could save a lot of people. (lines 381-398)

Lily also believes that not all obese persons are obese for the same reason and wishes that physicians made the effort to evaluate each obese patient individually then tailor individualized solutions. She states that she has never been to a healthcare professional who took time to address her weight problems as a complex issue which might have metabolic, genetic, addictive, and emotional components. Rather, Lily states, physicians immediately judge her to be a lazy and stupid person who eats only fast food so the physicians then devote only 3 minutes to the visit. Lily says she has never been to a medical professional who did not shame her for her weight.

Some of the women have questioned the appropriateness for themselves of medical standards for normal body weight. Dana's physician pressured her, in the absence of comorbidities, to lose weight when she had already reduced from moderately obese to overweight. Both Dana and Geri have found that making normal body weight a

goal increases their preoccupation with food and therefore can be counterproductive. Pamela found that a normal body weight created back pain by causing her vertebrae to be more prominent and to press uncomfortably into the back of the chair when she was seated. These three women, Dana, Pamela, and Geri, have determined that weights consistent with overweight or with simple obesity are comfortable weights for them. They have reduced from moderate obesity, severe obesity, and morbid obesity, respectively; none has comorbidities at her comfortable weight. Each of these women now orients her weight management efforts toward her comfortable weight as a goal, rather than toward medically- or societally-defined ideals. Pamela found support for such weight acceptance from her husband, who helped her determine that a higher-than-recommended body weight might relieve her back pain. Dana and Geri's weight acceptance may have been supported by the more general self-acceptance they have cultivated through spiritual practices.

The women have had to individualize their approaches to managing their problems with cravings and weight. For example, while Ava, Dana, and Grace have found some relief from their struggles in their 12-step groups, two of the other women briefly attended 12-step groups and did not find the experience helpful. The women who found individualized solutions did so only through much trial and error, self-study, courage in speaking to others about their struggle, and commitment to supportive practices. Moreover, help for their struggles with food cravings, weight problems, and shame generally was not found by turning to resources that might seem to be the obvious choices for such help: traditional diets, healthcare providers, or counseling.

What it means to break the food craving cycle

None of the women has broken the food craving cycle permanently, or believes she has. Thus, breaking the cycle has not meant escaping the cycle. What it has meant is one of three things: 1) interrupting the progression from the craving phase to the eating phase; 2) interrupting the progression of the food craving cycle from the eating phase to the self-recrimination phase; and 3) prolonging the quiescent phase to delay progression to the craving phase. Each of the three ways the cycle may be broken will be discussed below.

1) INTERRUPTING THE PROGRESSION FROM THE CRAVING PHASE TO THE EATING PHASE.

When a woman is able to resolve a craving without eating in response to the craving, the cycle is interrupted. Lily, for example, has been able to interrupt the cycle at the craving phase using the awareness voice. Ava has been able to interrupt the progression from the craving phase to the eating phase by reaching out to fellow members of her 12-step program when she has a craving. When the cycle is interrupted at the craving phase, the cycle reverts to the quiescent phase. Figure 2 below illustrates the food craving cycle interrupted at the craving phase and reverting to quiescence:

Figure 2. The Food Craving Cycle Interrupted at the Food Craving Phase

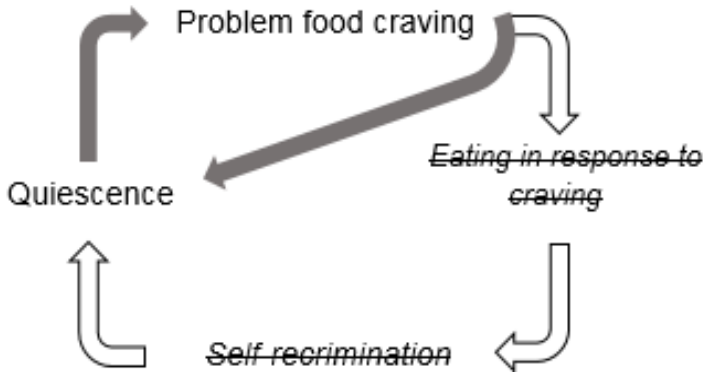

Figure 2. A dark arrow depicts the cycle reverting from the craving phase to the quiescent phase. The faint arrows show what typically would have been the progression of an unbroken cycle. The food craving cycle interrupted at the craving phase becomes a two-phase cycle, as the eating and self-recrimination phases are not visited. The names of the eating and self-recrimination phases are crossed out to denote that they are not part of the food craving cycle when it is interrupted at the craving phase.

2) INTERRUPTING THE PROGRESSION OF THE FOOD CRAVING CYCLE FROM THE EATING PHASE TO THE SELF-RECRIMINATION PHASE.

The women also have broken the cycle at the eating phase by interrupting the progression from eating to self-recrimination. Ava, for example, has been able to break the cycle by not focusing on her misstep when she eats in response to a craving, instead focusing on getting the next meal right. Figure 3 illustrates a cycle interrupted at the eating phase and reverting to the quiescent phase:

Figure 3. The Food Craving Cycle Interrupted at the Eating Phase

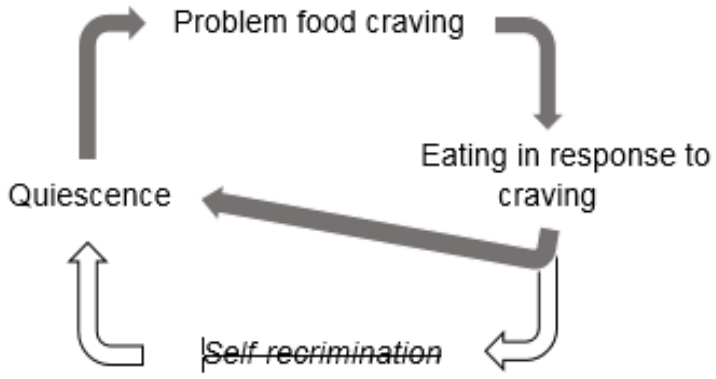

Figure 3. The figure illustrates the cycle progressing from the craving phase to the eating phase but not progressing to the self-recrimination phase. A dark arrow depicts the cycle resolving from the eating phase to the quiescent phase. The faint arrows show what typically would have been the progression of an unbroken cycle. The food craving cycle interrupted at the eating phase becomes a three-phase cycle, as the self-recrimination phase is not visited. The name of the self-recrimination phase is crossed out to denote that it is not part of the food craving cycle when the cycle is interrupted at the eating phase.

The women always experience a period of quiescence following the self-recrimination phase of the food craving cycle. Although the cycle is never interrupted at the self-recrimination phase, the women may experience an attenuated self-recrimination phase, one that is shorter or less brutal than a typical self-recrimination phase, as has been the case when women practice self-forgiveness. Interrupting the progression of the cycle between acute phases, then, involves two possibilities: interrupting the cycle at the craving phase or interrupting it at the eating phase.

Women have been able to interrupt the cycle at the craving phase by identifying and addressing emotions that give rise to cravings. They also have been able to interrupt the cycle at the eating phase through self-forgiveness. The self-forgiveness and emotional self-awareness that interrupt the food craving cycle during the craving or eating phase are not strategies that can be applied during those phases without practice at some other time; they are the products of ongoing practices that occur during the quiescent phase.

3) PROLONGING THE QUIESCENT PHASE.

The quiescent phase progresses only to the craving phase. Interrupting the progression to the craving phase by prolonging the quiescent phase forestalls cravings, thereby preventing progression through the food craving cycle. Women have been able to prolong the quiescent phase into a remission of food cravings through some combination of the following supportive structures: yoga or 12-step practice, avoidance of carbohydrates, replacing or redirecting the preoccupation with food, and bariatric surgery. It appears that a combination of supportive structures not only prolongs but also reinforces the quiescent phase. Figure 4 depicts a prolonged and reinforced quiescent phase:

Figure 4. The Food Craving Cycle Interrupted at the Quiescent Phase

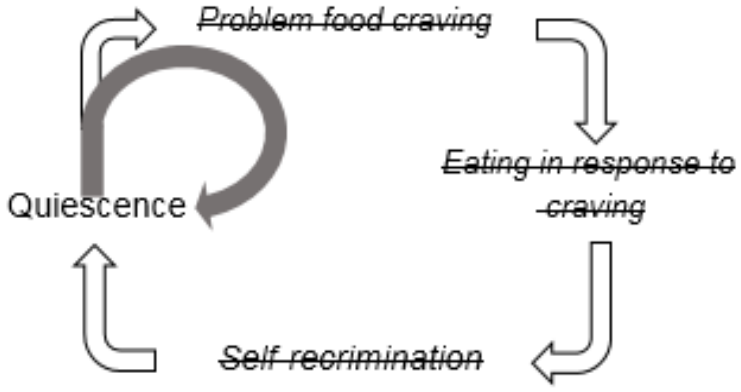

Figure 4. The dark arrow depicts the prolongation and reinforcement of the quiescent phase. The faint arrows show what typically would have been the progression of the cycle. When the food craving cycle is interrupted at the quiescent phase, the food craving, eating, and self-recrimination phases are not visited. The names of the craving, eating, and self-recrimination phases are crossed out to denote that they are not part of what has become a one-phase cycle.

The women who have interrupted the cycle by prolonging the quiescent phase into a remission have experienced the most relief from their struggles with the food craving cycle. Lily describes her experience with remission: "Not having [cravings]-- the peace is just amazing. I don't know how to describe it. I never realized the voice in my head was telling me to eat all the time. I hated that voice and I hated [myself]." (lines 354-357) Women who prolong the quiescent phase through yoga and 12-step programs not only benefit by prolonging the quiescent phase, but also by developing resources and skills that can be used to interrupt the cycle at the acute phases when food cravings do recur.

Breaking the cycle for the next generation.

The women have been concerned with another aspect of the food craving cycle: breaking the cycle generationally. The women reflect on childhood influences that contributed to their shame about their cravings, their eating, and their weight. They hope to break the family cycle for the girls and young women in their families.

All of these women grew up in a society which stigmatizes overweight and obesity. Most of them were overweight as children and experienced teasing and bullying outside the home and within their own families as well. Most of the women's mothers were overweight and many of the women, as girls, were exposed to their fathers' verbal abuse of their mothers' overeating and weight. Some of the women's fathers and/or brothers ridiculed the girls themselves. The mothers, attempting to spare their daughters the stigma of overweight, monitored the girls' eating and weight. Many of the women were placed on multiple diets by their mothers during childhood and adolescence. Some of the women began to use unhealthy fad diets as teens and two of the women starved themselves to manage weight during their teen and young adult years.

Some of the women whose mothers/parents made them diet stated that they now believe, looking back at photographs of themselves as children, that they were not, in fact, significantly overweight. Some of the women struggle with grief or resentment against their parents for the bullying and the diets, even while acknowledging that the diets were meant to spare them from stigma. Hazel describes friction with her mother that started in childhood:

> There was a lot of tension between my mom and me. I know she was very upset because she was overweight, she didn't want me to be overweight. She felt it was

> going to ruin my life. Even up to the day she died, she was very upset with my weight. I was successful, I had a husband, I had children, I had friends, I had a life, but it was my weight that was the motivating factor on how she interacted with me. (lines 299-306)

Evelyn describes tensions with her mother:

> My mother was kind of critical. It really is the echo of what she used to say to me, what I say to myself now when I feel guilty because I gave in to a stupid donut. My mother would make reference to my growing or increasing weight, how I'll never get married that way, or something either related to my looks, my image, my weight, how was I going to be a successful romantic candidate if I'm overweight? Things of that nature… that same song and dance is what I replay back to myself when I'm feeling guilty. It's really my mother in my head late at night, 8:30, whenever I'm struggling with my craving, who I hear. Only in my voice and not her voice. But it's her words. (lines 491-500)

Dana succinctly describes the irony of her overweight mother's efforts: "My mother tried to control me, even though she couldn't control herself." (lines 493-494)

The women, as girls, received confusing messages about food and eating from their parents. Women describe being taught that good children clean their plates, even when they are no longer hungry. Three women state that their cultures have strong orientations toward food which made it hard for them, as girls, to understand whether they were meant to eat much and frequently or not. Pamela, speaking of her mother, says, "She was very [representative of her culture], so everything was treated by food: 'Let me get you something to eat.' Even when I was trying to lose weight" (lines 235-236).

The women hope to instill less confusing and less damaging messages to the girls in their families. Hazel is tearful when she speaks of her daughter: "I give my best not to do it to [her]" (line 313). Geri describes her family's efforts to help a pre-adolescent niece whose preoccupation with food reminds Geri of her own:

> [Geri's sister] feels really strongly that she does not want her girls growing up with [weight problems and shame around eating and weight] you know. And so she does not talk about dieting. She says she calls it food choices. But we are all working… to make healthy snacks. Like if [niece] wants a snack, "Yeah, you can have cheese and an apple. You cannot have cheese and a bun." Most of the time. Some of the time we just let her have what she wants. But she would go to Sonic every day, this kid, if we let her. I get [my sister]. I feel the same… Because I do not want to stigmatize [niece] either, you know? At the same time, I do not want her to develop a weight problem to the degree that we had and have to deal with that. (lines 354-369)

The women hope to guide the next generation of girls to a healthy relationship with food and with their weight, but remain uncertain, even anxious, about their ability to do so. Thus the women struggle to break the cycle for the next generation.

SUMMARY OF CHAPTER FOUR

This chapter has described the main concern of the women, the food craving cycle. The properties of the food craving cycle have been identified and described. The discussion has demonstrated the interplay of stigma and difference in creating the toxic internal dialogue and struggle that accompany the food craving cycle. Breaking the cycle, the core category or means by which the women continually seek to resolve their main

concern, also has been discussed as were vulnerable points at which the food craving cycle may be interrupted. Because the women's experiences of the food craving cycle and their attempts to break the cycle are characterized by struggle and a toxic internal dialogue fed by stigma and stigma-derived shame, the grounded theory articulated in this chapter is titled *problem food cravings: a cycle fed by stigma and shame.*

PLAN FOR THE REMAINING CHAPTER

Chapter Five will review the statement of the problem and the methodology used in the present study. Chapter Five will relate the findings of the study to extant literature and discuss implications for healthcare and future research. Strengths and limitations of the study will be identified.

Chapter Five: Discussion and Recommendations

INTRODUCTION

The grounded theory *problem food cravings: a cycle fed by stigma and shame* emerged from CGT analysis of data collected in interviews with women who have had problems with food cravings and with weight. Chapter Five will begin by restating the problem that motivated the study and briefly review the methodology that was used. Then the chapter will discuss how the grounded theory *problem food cravings: a cycle fed by stigma and shame* relates to extant literature. Strengths and limitations of the study will be presented as well as implications of the study for healthcare professionals and directions for future research.

STATEMENT OF THE PROBLEM

Food cravings are known obstacles to moderate eating for people with many health conditions. Food cravings contribute to disordered eating not only in diagnosable eating disorders (Bruch, 1973), but also in mood disorders (Wurtman, 1988a, 1998b), premenstrual disorders (Morton et al., 1953), pregnancy (Harries & Hughes, 1958), and obesity (Weingarten & Elston, 1990). Food cravings can undermine adherence to medically prescribed diets in diabetes (Koch et al., 1999) and cardiovascular disease (Doyle et al., 2011). Food cravings that result in overeating and weight gain can undermine smoking cessation efforts (Toll et al., 2008) and adherence to psychotropic medications that cause food cravings as a side effect (Garland et al., 1988). Despite the challenges that food cravings may present to people with a variety of health conditions, the study of food cravings has focused largely on healthy university and community

samples. The experience of food cravings among healthy populations has been described as normative, a curious but not distressing phenomenon (Weingarten & Elston, 1991; Hill & Heaton-Brown, 1994). Food cravings among populations with health conditions that may be complicated by food cravings have not been well described. Given that food cravings appear to be problematic for a variety of populations with health conditions, the lack of adequate descriptions of the experience of food cravings as a problem represents a significant gap in the scientific literature.

METHODOLOGY

The present study was undertaken to address the knowledge gap about the experience of food cravings as a problem by studying the experience of food cravings in a population for whom food cravings are known to be problematic: obese women. Participation was limited to women because Women's Health is of particular interest to the PI. Classical Grounded Theory (CGT) was selected as the methodology for the study because CGT is well suited to the study of subjective phenomena about which little is known (Glaser, 1998).

Recruitment of participants began after approval of the study procedures was granted by the University of Texas Medical Branch's Institutional Review Board. Recruitment was purposive in order to attract potential participants who have experienced the phenomenon of interest, food cravings, and an associated health condition, obesity. Participants were recruited by means of flyers and snowball sampling. Written informed consent was obtained from each participant prior to recorded, individual interviews with the PI. In keeping with CGT methodology, which focuses on the concerns of the participants rather than those of the researcher, the initial interview guide consisted of a

single topical probe: “Tell me whatever you would like to about your experiences with food cravings.” Interviews were transcribed and potentially identifying content was removed prior to data analysis. Data analysis began with open coding, line-by-line identification of concepts and categories of concepts indicated by incidents within the data. Throughout data analysis, the constant comparative method was used, comparing within and among interviews incident to incident, incident to code, and code to code. The PI recorded memos that captured the PI’s thoughts about the data, emergent categories and their properties, and conceptual relations among categories. After analysis of the fourth interview, the emergent category *a cycle* was tentatively identified as the participants’ main concern. Two more interviews using the original topical probe were conducted to evaluate the fit of *a cycle* as the main concern. Constant comparison of data from the first six interviews identified *the food craving cycle* as the main concern and *breaking the cycle* emerged as a tentative core category. The PI continued in subsequent interviews to begin the interview with the original topical probe, but also began to theoretically sample the data to evaluate the fit of the emergent core category, *breaking the cycle*, by asking substantive questions related to the core category and its properties (Glaser, 1978). The PI began selective coding of data, focusing on testing the fit of the core category with the data (Glaser, 1978). Theoretical sampling and selective coding of the seventh and eighth interviews confirmed the fit of the core category *breaking the cycle* with the data. No data was found in the seventh and eighth interviews that indicated new categories or properties of categories so the data was deemed to be saturated. The ninth and tenth interviews subsequently were conducted to confirm saturation. Again, no

data was found indicating new categories or properties of categories and data collection was discontinued.

The next step of data analysis used the constant comparative method to sort the memos that had been written during open and selective coding. Memo sorting allowed conceptual relationships to emerge and a theoretical outline began to take form. The emergent theoretical outline was constantly compared to the data; when the theoretical outline did not fit the data, the outline was modified. Eventually all the categories, their properties, and relationships among them had been accounted for, indicating theoretical saturation. The resultant grounded theory, *problem food cravings: a cycle fed by stigma and shame*, was presented in narrative form in Chapter Four: Findings. The theory will be discussed in light of extant literature in the next section of this chapter.

COMPARISON OF FINDINGS TO EXTANT LITERATURE

The theory *problem food cravings: a cycle fed by stigma and shame* is considered in light of extant literature in this section. The relevance of some literature related to the findings was not established until the participants' main concern, the core category, and the grounded theory presented in Chapter Four had emerged. Therefore, literature that was not identified in the review of literature presented in Chapter Two but that emerged as relevant will be discussed here. For example, several concepts that will be considered in the following section were found in the literature on disordered eating behaviors, both clinical and subclinical. Although the present study did not assess for disordered eating behaviors, it may be fair to say that the eating described by many of the women has disordered features. In particular, the eating phase of the food craving cycle may resemble binge eating behavior; binge eating behavior is typically defined by two

characteristics: “1) eating, in a discrete period of time (e.g., within any two-hour period) an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances, [and] 2) a sense of lack of control during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating).” (American Psychiatric Association, 2013, Binge-Eating Disorder Section) Binge eating behavior is a form of disordered eating that may be subclinical or may be a component of clinically-diagnosable eating disorders. Specifically, binge-eating behavior that meets defined frequency, intensity, and psychosocial criteria is a diagnostic component of Binge-Eating Disorder (BED). BED is characterized by recurrent episodes of binge eating accompanied by:

> eating much more rapidly than normal; eating until feeling uncomfortably full; eating large amounts of food when not feeling physically hungry; eating alone because of being embarrassed by how much one is eating; feeling disgusted with oneself, depressed, or very guilty after overeating; marked distress regarding the binge eating is present; and the binge eating occurs, on average, at least once a week for three months. (American Psychiatric Association, 2013, Binge-Eating Disorder Section.)

The women’s experiences during the eating phase of the food craving cycle resemble binge eating behavior, while the overall progression of the food craving cycle has parallels to BED. Literature on disordered eating that relates to the findings in the present study therefore may be viewed as tentatively relevant to the women’s experiences of the food craving cycle and will be included in the discussion of findings which follows.

Food Cravings as Problems

The present study is the first known exploration of the experience of food cravings as a problem. Unlike individuals who typically participate in food craving research, the women in the present study describe food cravings as distressing and disruptive, affecting areas of their lives beyond overeating and overweight. Each of the women has experienced food cravings as an intractable problem.

Each of the women acknowledged that food cravings are a problem for them when asked if she has ever had problems with food cravings; a single question was able to identify women with problem food cravings. Many researchers have depended on the Food Cravings Questionnaire-Trait (FCQ-T) (Cepeda Benito et al., 2000), a lengthy multidimensional food-cravings instrument, to identify persons with a tendency to experience strong cravings. Recently researchers have identified a need for a simplified instrument for identification of persons who experience strong cravings. Meule et al. (2014) developed a 15-item reduced version of the FCQ-T as a simplified measure of food craving as a trait (FCQ-T-r). The findings of the present study suggest that an even more succinct self-report measure may serve the same purpose: simply asking a person whether she has experienced problems with food cravings. A simplified approach to identifying persons who have problems with food cravings could enhance translation of research on food cravings into clinical practice.

Although the women were able to recognize that food cravings are a problem for them, prior to their interviews the women had not given much thought to food cravings as a problem despite the persistent, recurrent, disruptive nature of the food craving cycle in their lives. Many of the women spoke of experiencing an altered cognitive state during

the eating phase. Dissociative states are known to be related to disordered eating behaviors in the general population (Rosen & Petty, 1994) and to binge eating episodes in persons diagnosed with eating disorders (La Mela et al., 2010). Latner, Mond, et al. (2014) found that cognitive/dissociative traits are a key factor in loss of control over eating. Not only do the women in the present study experience an altered cognitive state during the eating phase of the food craving cycle, the women also seem not to recall during the self-recrimination phase the sense of compulsion they feel during the craving phase; devaluing the power of food cravings seems to be an inherent part of the self-recrimination phase. The women's devaluation of the power of food cravings within minutes of having the food cravings may reflect some degree of dissociation. Dissociation from the experience of food craving may contribute to the women's lack of attention to the problem of food cravings during the quiescent phase, when practices to manage food cravings could be developed.

Stigma

Goffman (1963/1986) described stigma as a social response to a person based on a non-normative attribute possessed by the person; examples of such attributes include physical anomalies, psychological or moral traits, and race, religion, or national origin. People who are viewed as normal with respect to such an attribute categorize the person who possesses the non-normative attribute as different and less desirable than themselves. Goffman stated that, "By definition, of course, we believe the person with a stigma is not quite human" (p. 5). He noted that being stigmatized often leads to a person's also being viewed as having other imperfections unrelated to the stigmatized trait. Goffman reported that stigmatized individuals are aware that they fall short in the estimation of others and

tend to agree that they are defiled, making them vulnerable to shame. Goffman noted that the pain of stigma leads stigmatized people to try anything that promises to remove the stigmatizing attribute; they may go to extreme measures and may be prey to fraudulent claims about products and services purported to relieve their stigma.

Obesity is recognized as a stigmatizing condition in the scientific literature (Puhl & Heuer, 2010; Puhl & King, 2013; Bomback, 2014). Obese people are subject to insults, teasing, bullying, and social rejection; they face bias that can diminish their occupational prospects, educational advancement, and willingness to seek healthcare (Puhl & King, 2013). Societal and interpersonal stigmatization often are internalized by obese people and contribute to depression and anxiety (Ratcliffe & Ellison, 2015). Psychosocial stress associated with the stigma of obesity may perpetuate obesity through elevated catecholamines and cortisol levels which in turn encourage increased consumption of sugar and fat and the deposition of abdominal fat (Brewis, 2014). Sutin and Terracciano (2013) found that people who perceived themselves as experiencing weight discrimination were more likely to become or to remain obese than those who did not perceive weight discrimination. Puhl and Heuer (2010) report that healthcare settings are a "significant source of weight stigma" (p. 1023) creating an obstacle to healthcare seeking and compromising the provision of high quality care to obese persons. Gudzune et al. (2014) found that patients who perceived that their primary care providers judged them based on their weight were less likely to achieve weight loss after weight loss counseling. Vartanian and Smyth (2013) observe that public health efforts to combat obesity have relied on messages that stigmatize obese people despite the fact that

stigmatizing obese people may confer harm; they comment that stigmatizing public health messages thus violate the basic principle of bioethics, "first do no harm" (p.54).

The women in the present study reported many of the experiences described in the literature on stigma. The women feel that other people have judged them to be inferior to non-obese people and to have other undesirable traits such as laziness, stupidity, and lack of willpower. The women have internalized stigmatizing attitudes and they have experience deep-rooted shame. All of the women have gone to great lengths to remove the stigmatizing attribute, obesity, even when the risks may be high and the likelihood of lasting benefit questionable (surgery, diet pills). They have perceived the effects of stigma in their interactions with healthcare professionals when healthcare professionals shame them or dismiss them and offer simplistic, standardized advice rather than individualized care.

Shame

Tomkins (1963/2008) describes shame as:

> … the affect of indignity, of defeat, of transgression, of alienation. Though terror speaks to life and death and distress makes the world a vale of tears, yet shame strikes deepest into the heart of man… shame is felt as an inner torment, a sickness of the soul. It does not matter whether the humiliated one has been shamed by derisive laughter or whether he mocks himself. In either event he feels himself naked, defeated, alienated, lacking in dignity or worth. (p. 351)

The women in the present study related experiences similar to Tomkins's description of shame, in particular they mock themselves, they feel defeated, and feel they lack dignity or worth. Their experiences are similar to experiences described in the literature on binge

eating behavior and eating disorders. Self-hatred and body-image shame have significant effects on binge eating behaviors among the general population (Duarte et al., 2014) and are associated with increased symptomatology in people with diagnosed eating disorders (Kelly & Carter, 2012). Tylka et al. (2015) found that self-compassion is associated with less internalization of the ideal of thinness and lower disordered eating scores on the Eating Attitudes Test-26 (Garner et al., 1982). Kelly et al. (2014) investigated the effectiveness of compassion-focused therapy, which is oriented toward reducing shame and developing self-compassion, in the treatment of eating disordered patients; reductions in shame early in the course of treatment predicted better treatment outcomes. The women in the present study believe that unaddressed negative emotions give rise to their food cravings and thus to overeating. The studies described above suggest that internalized stigma, shame, and self-hatred play a prominent role in perpetuating the food craving cycle.

Exploiting Vulnerabilities in the Food Craving Cycle

The present study found problem food cravings to be part of a recurrent food craving cycle consisting of four phases: craving, eating, self-recrimination, and quiescence. The women experience the food craving cycle as disruptive and distressing and they struggle, with varying degrees of success, to break the cycle. The experience of the women indicates that breaking the food craving cycle is not likely to involve a permanent escape from the cycle; rather, breaking the food craving cycle has meant interrupting the cycle. The women have been able to interrupt the food craving cycle at three points; the craving phase, the eating phase, and the quiescent phase. Understanding actions that stop the cycle at each of these three vulnerable points suggests how the cycle

may be amenable to intervention. Effective intervention at these three points could mean that a person might experience food cravings without eating in response to the cravings, might eat in response to cravings without engaging in self-recrimination for having eaten, and/or might not experience problem food cravings at all.

The present study findings suggest that stopping the progression of the cycle from the quiescent phase to the craving phase, i.e. prolonging the quiescent phase, is the most promising way to exploit the vulnerabilities in the food craving cycle. During the quiescent phase, there are no problem cravings to contend with; during a prolonged quiescent phase, or remission, long periods of time can pass without the recurrence of problem food cravings that could initiate the cycle. Moreover, some practices that support remission make the other vulnerable points in the food craving cycle more vulnerable. For example, yoga and 12-step practice appear to stop or delay the progression from the quiescent phase to the craving phase, thus supporting remission. The women who practice yoga or 12-step programs also have been able to stop the progression of the cycle from the craving phase to the eating phase and from the eating phase to the self-recrimination phase using what they have learned from their practices. They have learned to attend to their physical or emotional state during the craving phase rather than being drawn along the cycle to the eating phase. They have been able to stop the cycle from progressing to the eating phase more consistently than women who rely on strategies designed to be used only when cravings occur, such as snapping a rubber band on the wrist or eating a small amount of the craved food. The women who cultivate self-acceptance and self-forgiveness as part of an ongoing practice also are able to stop the progression of the cycle from the eating phase to the self-recrimination phase. Among the

women in this study, self-forgiveness came from learning to apply yoga or 12-step philosophies to their lives, learning which they described as occurring in the context of ongoing, non-judgmental acceptance by others.

Maintaining supportive practices during the quiescent phase also may prolong the quiescent phase by reducing the preoccupation with food. All of the women who are currently in remission are engaged in regular practices that occupy time, energy, and attention: yoga, 12 steps, and continuous training for 5K races. Establishing and maintaining supportive practices during the quiescent phase thus helps to break the cycle at each of its three vulnerable points. The supportive practices cannot be practiced only in the moment a craving occurs, they require continuous commitment. Understanding food cravings as part of a recurrent cycle may help reinforce the need for continuous commitment to practices that inhibit the food craving cycle. The following paragraphs discuss extant literature related to supportive practices identified by the women in the present study: yoga, 12-step programs, addressing food cravings as a manifestation of addiction, and weight acceptance.

YOGA

No research on yoga that specifically addressed food cravings was found, but researchers have studied yoga as an intervention for disordered eating and weight problems. McIver et al. (2009) implemented a 12-week yoga intervention for obese women who had problems with binge eating. At the end of the intervention and at a three-month follow-up the women reported fewer binge eating behaviors and a decreased sense of shame. Dittman and Freedman (2009) found that women who regularly practiced yoga reported improvements in body image, self-acceptance, and responsiveness to

bodily sensations including hunger and satiety. Yoga is one of many mindfulness-based practices (Godsey, 2013). Daubenmier et al. (2011) state that:

> Mindfulness is characterized by an open, nonjudgmental stance towards present-moment experience as a way to dis-identify with and interrupt habitual patterns of thoughts, emotions, and behaviors to allow for more adaptive responses to occur. Mindfulness is cultivated through systematic training of a focused state of awareness through repeated attendance to bodily and other sensory experiences, thoughts, and emotions. (p. 3)

O'Reilly et al. (2014) reviewed the literature on mindfulness-based interventions for obesity and disordered eating behaviors, reporting that eating behavior outcomes were improved in 18 of 21 studies; binge eating frequency and/or severity improved in 11 of the 12 studies that measured binge eating outcomes. One woman in the present study who is in remission from the food craving cycle attributed her remission to the self-compassion and emotional awareness she developed through the mindfulness practice of yoga.

Alberts et al. (2010) studied the effectiveness of the mindfulness-based practice of acceptance as a strategy for coping specifically with cravings in overweight and obese men and women. Participants received instruction in the practice of acceptance-based craving regulation. They were instructed to:

> become aware of thoughts. They were instructed to accept whatever arises in the mind, without judging it or identifying with the content of it. By observing, rather than identifying with thoughts, one can experience their transient nature and learn

> that they eventually will fade… Participants learned to notice food-related thoughts, but also to observe and accept them without acting on them. (p. 161)

Acceptance of food cravings resulted in significantly lower food cravings and less loss of control in response to food cues compared to a control group. Alberts et al. (2012) found that mindfulness-based cognitive therapy, which includes awareness and acceptance of thoughts about eating, also reduced food cravings as well as measures of disordered eating. The women in the present study identified thoughts as a basic component of their food cravings, describing the intensification of a food craving as the food-related thought progressed to preoccupation or obsession. The acceptance of food thoughts as practiced in the Alberts et al. studies may represent a way to interrupt the craving phase before it progresses to the eating phase by decreasing the intensity of food cravings.

Other researchers have proposed that thoughts are an essential component of cravings and cravings, therefore, may be managed with cognitive strategies. Kavanagh et al. (2005) describe the development of cravings for a given substance (including food) as a process involving two kinds of thought, intrusive and elaborative. Kavanagh et al. state that, first, an apparently spontaneous thought about a craved substance intrudes into one's attention; the thought appears to be spontaneous because it arises automatically from learned associations with internal or external cues such as a negative mood or the mention of palatable food. Kavanagh et al. describe an intrusive thought as transient by nature and susceptible to distraction by other thoughts or stimuli, but state that intrusive thoughts at times may give rise to affective reactions that result in elaboration of the thought, such as imagining how good it would feel to consume the craved substance. The researchers theorize that craving arises when elaborated thoughts replace the transient

intrusive thought and argue that the elaborative process, rather than the intrusive thought itself, accounts for the persistence of a craving. They state that elaboration recruits working memory to develop sensory images of the craved substance, and propose that focusing one's attention on competing imagery and other tasks that recruit working memory may interrupt elaboration and thus resolve the craving.

Kemps and Tiggemann (2007, 2013) report that images that compete with the sensory modality of the elaborated thought (i.e., sight, smell, taste) are effective in reducing food cravings in undergraduates. They note that competing imagery provides only temporary relief from food cravings, but repeated use of the strategy does not diminish its effectiveness; the researchers therefore suggest that competing imagery may be useful long-term as "in-the-moment" (p. 193) relief from food cravings. In-the-moment strategies to manage food cravings would exploit the vulnerability of the food craving cycle at the craving phase by preventing progression to the eating phase. Kavanagh et al.'s research also suggests a mechanism that explains the efficacy of mindfulness strategies in managing cravings: mindfulness may help people learn to let intrusive thoughts pass without elaborating on them, thereby preventing the development of cravings. Preventing the development of food cravings interrupts the food craving cycle at the quiescent phase, prolonging the quiescent phase and potentially contributing to remission of cravings.

12-STEP PROGRAMS

Few studies were found that address 12-step programs in the management of food cravings, obesity, and disordered eating. Russell-Mayhew et al. (2010) observe that research on the 12-step program Overeaters Anonymous (OA) is scarce because of the

fellowship's traditions of anonymity and not supporting outside enterprises. Other 12-step programs for eating disorders share the same traditions (e.g., Food Addicts Anonymous, n.d.; Compulsive Overeaters Anonymous-HOW, 2009-2015; Food Addicts in Recovery Anonymous, 2015) and no research on those programs was found. Nonetheless, the existing research on OA indicates that the program helps by offering non-judgmental attitudes, support, empathy, a sense of belonging in a group of people who have lived with similar problems, and increased clarity about emotional needs. The OA program also counters members' self-blame and self-recrimination for lacking willpower by offering an alternative explanation for members' overeating; OA proposes that a physiologic reaction to certain foods may trigger a compulsion to eat those foods (Suler & Barthelomew, 1986; Hertz et al., 2012). Ronel and Libman (2003) report that recovery in OA involves a change in a person's world view that results from a constant practice of the program. These findings are consistent with the experiences of the women in the present study who are active in 12-step recovery.

People with eating disorders are known to have more difficulty identifying emotions and expressing them verbally than non-eating disordered persons (Iancu et al., 2006). Additionally, low distress tolerance has been associated with overeating and emotional overeating (Kozak & Fought, 2011). While none of the women in the present study reported a diagnosed eating disorder, they seem to share a difficulty identifying and managing negative emotions, at least at the time the emotions are occurring. The increased clarity about emotions and emotional needs that might be developed through the 12 steps or a mindfulness practice, could interrupt the craving phase of the food craving cycle by helping the women recognize and address the negative emotions that

they believe precede food cravings. Specific psychotherapeutic approaches that offer some of the benefits of 12-step programs and mindfulness practices with respect to negative emotional states were identified that might also help interrupt the food craving cycle. Dialectical behavior therapy (DBT) teaches mindfulness as a foundation for distress tolerance and emotion regulation skills (Safer et al., 2009). DBT has been shown to reduce emotional eating and support weight loss or weight maintenance in obese emotional eaters (Roosen et al., 2012). Emotion regulation skills, a component of DBT, have been associated with weight loss among obese persons (Himes et al., 2015) and decreased binge eating in persons with BED (Wallace et al., 2014). Although no studies were found that specifically investigated the effect of DBT on food cravings, the effectiveness of DBT in helping people with problem eating behaviors suggests that it could help people whose food cravings arise from negative emotions. Mindfulness skills learned through DBT might prevent the development of food cravings, thus prolonging the quiescent phase, or support responses to food cravings other than eating craved foods, thus interrupting the progression of the food cycle at the craving phase. Compassion-focused Therapy (Kelly et al., 2014) may mitigate the unique contributions of the negative emotions of shame and self-hatred to the food craving cycle.

ADDRESSING FOOD CRAVINGS AS A MANIFESTATION OF ADDICTION

The women in the present study drew parallels between their behavior with respect to food and the behavior of alcoholics and addicts with respect to alcohol and other addictive substances. Most of the women found this parallel frustrating, commenting that an alcoholic or addict who quit abusing alcohol or drugs never had to consume the addictive substance again, whereas they would still have to eat. Three of the

women in the present study have identified specific foods or categories of foods that trigger food cravings; they avoid those foods while continuing to eat a variety of other foods. Each of them is remission from cravings and the food craving cycle. Their experience suggests that the parallel between food craving and alcoholism or addiction has an application where specific foods can be identified as craving triggers. The experience of the women who abstain from particular foods reflects a parallel not only to active alcoholism and addiction, a parallel all of the women in the present study drew, but also to the nature of abstinence: sober alcoholics continue to drink, e.g., coffee, but they do not drink alcohol; recovered addicts may take drugs, e.g. antibiotics, but they do not take drugs of abuse; the women abstaining from specific foods still eat, but they do not eat foods that trigger food cravings.

The foods the women associated with problem cravings in the present study were foods high in added fat and/or refined carbohydrates. Schulte et al. (2015) identified foods high in added fat and/or refined carbohydrates such as white flour and sugar as having pharmacokinetic properties similar to those of drugs of abuse, i.e. highly refined/highly concentrated substances with a rapid rate of absorption. The researchers found foods with these properties to be associated with "addictive-like eating behaviors" (p.13). Calorie-rich, highly palatable foods have been shown to activate the same dopamine, opioid, and cannabinoid reward pathways in the brain as cocaine and heroin (D'Addario et al., 2014). Ifland et al. (2012) report that "insofar as people abuse substances in order to change how they feel, it appears that sugar provides a transient energy boost, flour produces a sedative effect, and high-fat dairy generates a numbing or calming feeling" (p. 349). The women in the present study attribute their cravings to

negative feelings; eating the craved foods offers transient relief, like that described by Ifland et al. Moreover, the women sometimes craved and ate food that they did not like. The phenomenon of wanting a substance without liking the substance has been described in the literature on addictions. Robinson and Berridge (1993) note that, "as drugs come to be wanted more and more, they often come to be liked less and less." (p.249) and attribute the disjunction between wanting and liking to progressive changes in neurotransmitter function caused by repeated use of the addictive substance. Following Robinson and Berridge, researchers have studied the roles of liking and wanting in eating behavior. Temple et al. (2009) report that obese women given a 300-calorie junk-food snack every day liked the snack less after two weeks than they did at baseline but wanted it more, i.e. were more persistent in tasks rewarded by the snack food. Temple et al.'s study confirmed that the disjunction between liking and wanting a substance that is observed in addictions can apply to food and that, as with addictive substances, repeated exposure to a food may cause a susceptible person to like the food less but want it more. Other experiences described by the women in the present study have been proposed by researchers as features of food addiction: eating more of certain foods than planned, dealing with negative feelings after eating those foods, having withdrawal symptoms when avoiding certain foods, and experiencing distress around one's eating behaviors (Gearhardt et al., 2009).

Werdell (2012) states that treatment for food addiction requires complete abstinence from addictive foods in order to eliminate food cravings. The women in the present study who continually abstained from refined foods experienced remission of cravings. Identifying and abstaining from foods that may have addictive properties thus

appears to interrupt the food craving cycle by prolonging the quiescent phase. Some of the women reported experiencing withdrawal when first abstaining from foods they identified as addictive. Werdell states that a food addict may need support to withdraw from the addictive food and adds that few professionals are trained to work with food addicts and there are no hospitals that offer treatment for food addiction. Werdell notes that 12-step programs support the principle of abstinence. Two of the women in the present study who self-identify as food addicts utilize 12-step programs to support their abstinence from refined carbohydrates. One of the women found the encouragement of her 12-step fellowship instrumental in understanding and withstanding her withdrawal symptoms.

Some researchers speculate that identifying some obese people as food addicts would compound the stigmatization they already experience based on their weight. DePiere et al. (2013) conducted two studies to determine the effect of the food addiction label on the stigma of obesity; in one study, food addiction added to weight-based stigma while in the other it did not. Latner, Puhl, et al. (2014) found that a food-addiction model of obesity decreased obesity stigma compared to a non-food-addiction model. Latner, Puhl, et al. concluded that presenting obesity as an addiction could help reduce prejudice against obese people. Other researchers have been careful to note that not all obese persons can be classified as food addicts (Davis et al., 2011).

WEIGHT ACCEPTANCE

Three of the women in the present study have concluded that their optimal weight is higher than medically-established norms based on BMI. The weights these women identify as optimal are consistent with overweight or simple obesity; however, at these

weights they do not experience comorbidities commonly attributed to overweight and obesity even though they may have experienced comorbidities at higher weights. Two of the women state that attempting to achieve a lower goal weight increases their obsession with food and weight. One woman finds that she has back pain when she weighs less than her adopted optimal weight.

The experiences of the three women are consistent with approaches to health and weight that have been termed *weight-inclusive* (Tylka et al., 2014). Weight-inclusive approaches to health are distinguished from *weight-normative* approaches to health by being based on the idea that maintenance of weight within the normal range is not a prerequisite or even a reliable marker for health (Barry et al., 2014; Brown & Kuk, 2015). Weight acceptance is a component of weight-inclusive approaches that reject restrictive dieting for the sake of attaining a predetermined goal weight in favor of learning to eat in response to physiologic sensations of hunger and satiety (Tylka et al., 2014). Weight-inclusive approaches have been advocated as an antidote to the frequent diet failure and potentially harmful weight-cycling common among dieters (Tylka et al, 2014). Weight cycling has been implicated in changes in metabolism that make weight loss increasingly more difficult and making subsequent weight gain more likely (Bosy-Westphal et al., 2013), greater regain of fat rather than lean body weight (Cereda et al., 2011), and emotional distress (Olson et al., 2012). Experiences reported by two of the women in the present study exemplify deleterious effects of weight cycling: each described the frustration and distress of being unable to lose weight when diligently following diets that previously had worked for them.

Weight-inclusive approaches are a paradigm shift reflecting current understanding that weight-normative approaches perpetuate obesity stigma and that short-term weight losses typically achieved through available weight loss strategies do not cure obesity (Mann et al., 2007; Bacon & Aphramor, 2011). Compared with weight-loss diets, weight-inclusive interventions have been shown to have lower rates of attrition and longer-term maintenance of behavior change; researchers have reported better health outcomes with weight-inclusive approaches than with dieting, including lower levels of binge eating, body-dissatisfaction, depression, cholesterol, and blood pressure, and higher ratings of self-esteem and quality of life; benefits were sustained through one and two year follow ups (Bacon et al., 2005; Gagnon-Girouard et al., 2010). Researchers have noted that because weight-normative, restrictive-dieting approaches to obesity confer little lasting benefit and may cause harm, the ethical principles of beneficence and non-maleficence may be compromised by continued advocacy of these weight-normative approaches by health professionals (Bacon & Aphramor, 2011; Tylka et al., 2014).

VULNERABILITIES IN THE GENERATIONAL CYCLE

Women in the present study were concerned that the next generation of girls in their family might struggle as they had with issues reflected in the food craving cycle. Most of the women experienced food cravings and shame over their body weight in childhood or adolescence; many of the women were exposed to the stigma of overweight within their families, either directly by having their weight be a topic of discussion or teasing within the family or indirectly by witnessing their fathers verbally abuse the women's mothers about the mother's weight. The women hope to protect the next

generation of girls in their families from similar experiences and to support healthy eating and body image, but they are unsure how to do so.

Puhl and King (2013) report that overweight children and adolescents frequently are subjected to weight-based teasing and bullying. They note that these experiences contribute to social isolation, poor school attendance, anxiety, depression, disordered eating, and reduced physical activity; they identify bullied children as vulnerable. Eisenberg et al. (2003) reported that 30% of girls and 25% of boys in a U.S. school were teased about their weight by peers; almost as many children were teased by family members. The researchers found that weight-based teasing is associated with low self-esteem, depressive symptoms, and suicidality. Children who were teased by both peers and family had the highest levels of emotional effects, and more than half of the girls who were teased by both peers and family considered committing suicide. Even when well-intended, parents' comments about their children's body size and encouragement of weight control can be harmful, contributing to body dissatisfaction and disordered eating (Kluck, 2010; Neumark-Sztainer et al., 2010). Women in the present study sought to avoid interacting with their daughters and nieces in ways that might stigmatize them, focusing instead on encouraging the girls to make healthy food choices.

It may be possible to reduce children's exposure to weight stigma. Puhl and Luedicke (2014) report that a majority of parents of children aged 2-18 would support efforts by schools and government to increase awareness, support for victims, and policies against weight-based bullying, regardless of whether their own children are overweight or not. Parents also may be able to mitigate the effects of weight-based bullying on their childrens' health. For example, sleep disturbances are more common in

adolescents who are bullied than those who are not (Kubiszewski et al., 2014). Sleep disturbances may contribute to daytime sleep, which has been associated with food cravings in adolescents (Landis et al., 2009). Parents' attention to their children's sleep patterns might help reduce food cravings in their children, potentially helping them to avoid craving-related overeating and overweight; sleep hygiene could help prevent the development of food craving cycles or prolong the quiescent phase in children who already may be experiencing the food craving cycle.

While many of the women in the present study experienced food cravings in childhood, they did not express a specific concern about the possibility that the girls in their family also might be experiencing food cravings; this parallels the women's lack of attention to food cravings as a recurrent problem in their own lives. Recognizing food cravings as a potential problem for their children might help the women reduce the impact of the food craving cycle on their children's lives. While the experience of food cravings in children has received little attention by researchers, extant research has identified promising strategies that can be used with children. Silvers et al. (2014) found that children experience stronger cravings than adults but children as young as six years old were able to regulate food cravings when given simple instructions on how to do so. Yokum and Stice (2013) reported that adolescents' cognitive reappraisal of food cravings resulted in brain imaging changes consistent with decreased attention to craved foods. The researchers in the studies just mentioned used behavioral observations and brain imaging to evaluate food cravings. How a parent might establish that a child is having cravings is not clear. A study by Neumark-Sztainer et al. (1999) revealed that 7th and 10th grade adolescents spontaneously reported having a craving as a reason for eating a certain

food, so it may be possible for parents to identify problem food cravings in children, at least older children, simply by asking their children if they have food cravings.

Parents may be able to help their children manage food cravings and potentially avert the food craving cycle using yoga and mindfulness practices. No research was found regarding the effects of yoga or mindfulness practices on food cravings in children, but researchers have successfully implemented yoga and mindfulness-based programs oriented to other health outcomes in children ranging from pre-school-aged to adolescent (Carei et al., 2010; Flook et al., 2015; Schonert-Reichl et al., 2015). Carei et al. (2010) implemented a yoga program as an adjunct to standard treatment for eating disorders in girls and boys aged 11-21 years; yoga practice was associated with decreased food preoccupation immediately following yoga sessions and a sustained reduction in eating disorder symptoms four weeks post-treatment. Researchers have implemented mindfulness curricula with preschoolers (Flook et al., 2015) and fourth- and fifth-graders (Schonert-Reichl et al., 2015) and report favorable outcomes on social and emotional measures such as social competence and emotional regulation. Yoga and mindfulness-based programs for families and children are commercially available for practice at home (Snel & Kabat-Zinn, 2013; Yoga for Families & Diego, 2009) although no research was found evaluating outcomes of their use.

Parents may be able to help their children with food cravings by considering the possibility of food addiction in their children. Gearhardt et al. (2013) observed that identifying food addiction in childhood could guide interventions to prevent lifelong eating-related problems. The researchers developed an instrument to identify children who may have food addiction: the Yale Food Addiction Scale for Children (YFAS-C).

Merlo et al. (2009) and Mogul et al. (2014) have proposed a treatment model for children who show signs of food addiction; they recommend that treatment for children who show signs of food addiction should be modeled after treatment for other addictions rather than focused on the child's diet and weight. Mogul et al. propose interventions that are oriented to changing the behavior of all family members, rather than only the behavior of the addict, as a model for changing children's eating habits.

A vast amount of research and commentary has been published about the determinants and management of childhood eating behaviors and obesity. Review of this vast literature is beyond the scope of this dissertation. The foregoing discussion of vulnerabilities in the generational cycle reflects a selection of literature that seems uniquely relevant to the findings of the present study.

UNANTICIPATED FINDINGS

Classical Grounded Theory (CGT) methodology requires the suspension of preconceptions to allow the concerns of participants to emerge and guide the inquiry; thus all findings in a CGT study can be considered unanticipated. Nevertheless, salient unanticipated findings in the present study will be identified here. Perhaps the most surprising finding is the significant disruption that food cravings create in the women's lives, especially the extensive distress related to stigma, shame, and self-recrimination. All of the women drew a parallel between the turmoil experienced by alcoholics and addicts and their own struggles with food cravings. The fact that the women had not identified food cravings as significant, recurrent problems in their lives is surprising given the disruption the women described. The remission of food cravings in women who abstain from specific foods and/or practice 12-step programs modeled after recovery

programs for alcoholism and addiction is noteworthy, as it indicates that an addiction/abstinence model can be relevant to the management of food cravings. The finding that only women who maintain ongoing supportive practices during the quiescent phase experience remission of food cravings, and that these women continue to see themselves as potentially vulnerable to food cravings, highlights the chronic nature of problem food cravings. The need to address problem food cravings chronically is underscored by the finding that strategies designed to be employed only during an episode of craving were ineffective.

The women's characterization of food cravings as thoughts is a salient finding, in that the cognitive nature of food cravings offers some direction in their management (Kavanagh et al., 2005; Kemps & Tiggeman, 2015). Certain aspects of the women's descriptions of episodes of food craving were surprising. The women sometimes crave food that they do not like. They experience giving in to a food craving as conceding rather than as giving themselves permission to eat, and some women experience dissociation when conceding to a craving. Any positive effects the women gain by eating craved foods are fleeting and followed immediately by negative effects in the form of self-punishment, so that eating in response to a food craving is on balance a negative experience for these women. Food cravings are clearly distressing to the women in the present study, a finding at odds with reports in the literature of food cravings as being curious but not distressing (Hill & Heaton-Brown, 1994).

LIMITATIONS

The demographic characteristics of the participants could be considered a weakness of the present study: only women were chosen as participants for the study;

most of the women were middle-aged; they were white or Hispanic, and all were well-educated. The recruitment flyer's question "Ever had problems with weight?" may have limited the recruitment of a more diverse group of participants. For example, overweight and obese African American girls and women are less likely to be dissatisfied with their appearance and less likely to be seen as unattractive than are overweight and obese white girls and women (Ali et al., 2013; Quick & Byrd-Bredbenner, 2014). Overweight and obese African American women are less likely than their white counterparts to identify themselves as overweight or obese (Hendley et al., 2011) or to have tried to lose weight (Duncan et al., 2011). African American women therefore may have been less likely to see themselves as having had problems with weight and to respond a flyer asking women if they had ever had problems with weight. Additionally, a smaller percentage of Asian American women is obese than are black, Hispanic, or white women (11% vs. 33-57%) (Ogden et al., 2013), reducing the pool of Asian American women that would endorse having had problems with weight.

The study was limited to an exploration of problem food cravings in women who had experienced obesity, which is only one of several health conditions known to be associated with problem food cravings. The description of problem food cravings as experienced, for example, by people using diets prescribed for cardiovascular conditions or diabetes or people attempting smoking cessation, may be different from the findings of the present study, especially if the health conditions are not associated with significant stigma. The study also was limited to women, although men are also known to have weight problems associated with food cravings (Cowan & Devine, 2008).

STRENGTHS

The use of Classical Grounded Theory (CGT) methodology is a strength of the present study. CGT allowed members of a population whose health may be affected by food cravings to describe the experience of food cravings, affording new insights into the nature of problem food cravings and the discovery of a theory that may guide future research and treatment to address problem food cravings. The participants' candid disclosure of experiences that they described as distressing and shameful is a strength of the present study. The education level of the women, while demographically a limitation of the study, could be considered a strength of the study to the extent that the women may have been better able to articulate their experiences than women with less education. Another strength of CGT methodology is that the result of the present study is a theory that can be modified when new data emerges through continued research.

IMPLICATIONS

The findings of the present study show that food cravings can contribute to significant disruption in the lives of obese women who have problems with food cravings. This finding is significant in itself. Knowing that food cravings can be problems for some people may help health professionals better understand their patients and perhaps offer more compassionate care. Specific implications for practice should be drawn more cautiously, as the findings of the present study are a theory and are not meant to be statistically generalizable. Still, knowing that certain practices may result in the remission of food cravings may guide health professionals in evaluating for food cravings and developing an individualized plan of care. For example, the finding that, for some women, eating refined carbohydrates increases food cravings challenges standard dietary

guidance that any food can be part of a healthy diet (Freeland-Graves et al., 2013) and could guide health professionals in individualizing dietary guidance for patients with food cravings. Providers also might recommend 12-step programs, yoga, mindfulness, Dialectical Behavioral Therapy, and/or Compassion-focused Therapy in conjunction with individualized nutritional guidance for patients with problem food cravings. Healthcare providers could become aware that the weight-normative approach to health may harm patients by initiating weight cycling and reinforcing weight stigma, which might worsen food cravings.

The identification of the food craving cycle may offer direction for future research on interventions to exploit vulnerabilities in the cycle. Moreover, the finding that some of the women already were experiencing problem food cravings as children may guide researchers to study ways to identify and manage food cravings in children, potentially preventing lifelong struggles with food cravings.

FUTURE STUDIES

Future CGT studies should explore the experiences of food cravings in African American women using a recruitment strategy that does not depend on self-perceived weight problems. Future studies should seek participants of different ages and educational backgrounds, men, and members of other populations with health conditions that may be affected by problem food cravings. Findings from CGT studies could be used to develop items for factor analysis to develop or modify food cravings questionnaires for use in populations with health conditions associated with problem food cravings. Future studies also should compare the use of food cravings questionnaires with the use of the single question "Have you ever had problems with food cravings?" as

a way of identifying persons who might benefit from interventions for problem food cravings.

Intervention studies could be designed based the vulnerabilities in the food craving cycle identified in the present study. Research focused on prolonging the quiescent phase could evaluate the effectiveness of 12-step programs, yoga, mindfulness, Dialectical Behavioral Therapy, and Compassion-focused Therapy, alone or in combination with abstinence from foods that might be classified as addictive. Further research is needed to identify which foods might be addictive and to develop interventions to support affected people in withdrawing and abstaining from potentially addictive foods. Researchers investigating the efficacy of tertiary interventions such as bariatric surgery should consider including long-term effects on food cravings as an outcome of interest. Future research could approach the identification and management of food cravings as a means of secondary prevention in weight-gaining persons who are at risk of becoming obese. Finally, strategies that have been shown in healthy populations to reduce food cravings as they occur, such as cognitive reappraisal (Giuliani et al., 2013) and imagery (Kemps & Tiggemann, 2007), should be studied in populations with health conditions associated with problem food cravings.

CONCLUSION

The present study offers a theory of problem food cravings as experienced by obese and formerly obese women. The theory *problem food cravings: a cycle fed by stigma and shame* emerged from data obtained in interviews with women affected by problem food cravings, and reflects the disruption and distress the women experience around food cravings. The food craving model offers healthcare professionals and

researchers direction for interventions and future studies that may benefit people who struggle with food cravings. Findings also may help women who experience problems with food cravings and weight to understand the effects of food cravings on their lives, to cultivate compassion for themselves, and to explore practices to interrupt the food craving cycle.

Appendix A: IRB Approval

UTMB
The University of Texas Medical Branch

OFFICE OF RESEARCH SUBJECT PROTECTIONS
Institutional Review Board

27-Jan-2014

MEMORANDUM

TO: Kelly Cowling, RN, MSN/Carolyn Phillips, RN, PhD
Graduate School of Biomed Sciences 1132

FROM: Michael Loeffelholz, PhD
Vice-Chairman, IRB #1
Institutional Review Board 0158

SUBJECT: IRB #13-0548 - **Final Approval** of Expedited Protocol.
A Classical Grounded Theory Exploration of the Experiences of Food Cravings in Women Who Have Had Problems with Food Cravings and Weight

Having met the requirements set forth by the Institutional Review Board by an expedited review process on **December 23, 2013,** your research project is now approved, effective **January 27, 2014.**

This project will require annual review and will expire on December 23, 2014. **Research that has not received approval for continuation by this date may not continue past midnight of the expiration date.**

Attached is the research consent form with the date of the IRB approval. Please use this form with the IRB approval date and make additional copies as they are needed. **In accordance with amendments to 21 CFR Parts 50, 312 and 812 effective 12/5/96, consent forms must be dated when consent is obtained.**

ML/ak

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Institutional Review Board
301 University Blvd.
Galveston, TX 77550-0158
409.266.9475

13-Nov-2014

MEMORANDUM

TO: Kelly Cowling, RN, MSN/Carolyn Phillips, RN, PhD
Graduate School of Biomed Sciences 1132

FROM: Michael Loeffelholz, PhD
Institutional Review Board, Chairman

RE: Final Approval of Continuing Review

IRB #: IRB # 13-0548

TITLE: A Classical Grounded Theory Exploration of the Experiences of Food Cravings in Women Who Have Had Problems with Food Cravings and Weight

The UTMB Institutional Review Board (IRB) reviewed the above-referenced research protocol via an expedited review procedure on **06-Nov-2014** in accordance with 45 CFR 46.110(a)-(b)(1). Having met all applicable requirements, the research protocol; is approved for continuation for a period of 12 months. The approval period for this research protocol begins on **13-Nov-2014** and lasts until **06-Nov-2015**.

The research protocol cannot continue beyond the approval period without continuing review and approval by the IRB. In order to avoid a lapse in IRB approval, the Principal Investigator must apply for continuing review of the protocol and related documents before the expiration date. A reminder will be sent to you approximately 90 days prior to the expiration date.

If you have any questions related to this approval letter or about IRB policies and procedures, please telephone the IRB Office at 409-266-9475.

Appendix B: Recruitment Flyer

Women:

Ever had problems with *food cravings?*

Ever had problems with *weight?*

If you answered yes to each of these questions and are willing to meet for one or more interviews as part of a study, please phone or text Kelly Cowling, PhD(c), RN, CNM at (832) 247-4545, or email kccowlin@utmb.edu

This study has received approval from the Institutional Review Board at The University of Texas Medical Branch (UTMB). All interviews will be confidential.
The study is limited to participants 18 or older.

Appendix C: Screening Algorithm for Inclusion Criteria

When a potential participant contacted the PI, the PI thanked her for expressing interest and asked:

1) if she was 18 years or older;
2) if she considered English her primary language; and
3) if she had had food cravings other than during pregnancy or premenstrually.

If the potential participant met these criteria, the PI stated that there was a question about weight and explained that the question was not about the potential participant's current weight, but that the potential participant would be asked her height and whether she's ever weighed a specific weight or higher. The PI asked the potential participant if that was okay before proceeding. If the potential participant agreed, the PI asked the potential participant's height. The PI used Table 1, below, to determine the weight which equals a BMI of 35 for the potential participant's height, and asked if the potential participant had ever weighed that much or more.

Table 1. *Weight in pounds at which the Body Mass Index (BMI) equals 35 for a given height in inches.*

Height in Inches	Weight in Pounds
58	167
59	173
60	179
61	185
62	191
63	197
64	204
65	210
66	216
67	223
68	230
69	236
70	243
71	250
72	258
73	265
74	272
75	279
76	287

Adapted from US Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute. (N.D.) Body mass index table 1. Retrieved 2/23/2013 from http://www.nhlbi.nih.gov/guidelines/obesity/bmi_tbl.htm

If the potential participant's reported height and weight history were consistent with a BMI of 35 or greater, the PI asked if she was willing to participate in one or more recorded interviews. If so, an interview was scheduled for a time and place convenient to the participant and the PI which afforded privacy and minimal interruptions.

If a potential participant did not meet eligibility criteria, the PI logged the screening and the reason for exclusion by date and means of contact only. The log was kept in a locked file in the PI's office.

Appendix D: Informed Consent Form

You are being asked to participate in the research project entitled A Classical Grounded Theory Exploration of the Experiences of Food Cravings in Women Who Have Had Problems with Food Cravings and Weight, under the direction of Kelly Cowling, RN, CNM, PhD(c).

PURPOSE OF THE STUDY

The purpose of this study is to explore the experience of women who have experienced problems with food cravings and weight. You are being asked to participate because you expressed an interest in the study and stated that you are a woman who has experienced problems with food cravings and weight.

RISKS OF PARTICIPATION

The potential risks from participation in the study are:

- Possible psychological distress when discussing potentially sensitive topics related to eating behaviors and weight.
- Possible loss of confidentiality if an interview is overheard or if data is traceable to a participant.

The risk of loss of confidentiality will be minimized by:

- Conducting the interview in a location where privacy can be maintained.
- Using a white noise machine (phone app) to muffle our conversation if you request it.
- Identifying your interview only by a unique participant number.
- Using a transcription service which is obligated to maintain confidentiality to transcribe the interview into a written document.
- Having the transcription service delete their copies of your interview once the transcription is accepted by the PI.
- Removing information that might identify you from the copies of transcriptions that will be used for data analysis, so that data collected in your interview(s) cannot be traced to you.

One unaltered transcription of your original interview will be kept in locked file in the PI's home office. All interview data, electronic and written, will be destroyed at the end of the study.

The risk of psychological distress will be addressed by:

- Assuring you now and, if needed, during the interview, that you can withdraw or reschedule at any time without consequence to you or any need to explain.
- Providing you with contact information for resources related to psychological distress and to eating problems if you desire it.

NUMBER OF PARTICIPANTS AND THE DURATION OF YOUR PARTICIPATION

The anticipated number of participants involved in the study will be up to 25. The length of time for your participation is no more than 90 minutes per interview, for one or more interviews.

BENEFITS TO THE PARTICIPANT

The direct benefits to you may include being able to freely express your concerns about problems with food cravings and weight in a non-judgmental atmosphere.

BENEFITS TO SOCIETY

Participating in this study will allow you to provide information which could help researchers and healthcare providers understand concerns of women who experience problems with food cravings and weight. Understanding the concerns of these women may help health professionals understand the experience of food cravings as a problem and direct research toward recognition and treatment of problems with food cravings and weight.

OTHER CHOICES (ALTERNATIVE TREATMENT)

The alternative is not to participate in the study.

REIMBURSEMENT FOR EXPENSES

There will be no reimbursement for participation in this study.

COSTS OF PARTICIPATION

There is no cost for participation in this study.

ADDITIONAL INFORMATION

1. If you have any questions, concerns or complaints before, during or after the research study, or if you need to report a research related injury or adverse reaction (bad side effect), you should immediately contact Kelly Cowling at (832) 247-4545 or Carolyn Phillips at (409) 772-8234.

2. Your participation in this study is completely voluntary. You may refuse to participate or stop your participation in this project at any time without any consequence to you.

3. If you have any complaints, concerns, input or questions regarding your rights as a subject participating in this research study or you would like more information, you may contact the Institutional Review Board Office, at (409) 266-9475.

The purpose of this research study, procedures to be followed, risks and benefits have been explained to you. You have been allowed to ask questions and your questions have been answered to your satisfaction. You have been told whom to contact if you have additional questions. You have read this consent form and voluntarily agree to participate as a subject in this study. You are free to withdraw your consent at any time. You may withdraw your consent by notifying Kelly Cowling at (832) 247-4545. You will be given a copy of the consent form you have signed.

Informed consent is required of all persons in this project. Whether or not you provide a signed informed consent for this research study will have no effect on your current or future relationship with UTMB.

_____ _____

Signature of Subject Date

Using language that is understandable and appropriate, I have discussed this project and the items listed above with the participant.

_____ _____

Signature of Person Obtaining Consent Date

Appendix E: Resources for Support

The following are resources you may find helpful in addressing problems with food cravings and weight. Resources are offered as possibilities to explore, not as recommendations or referrals.

SUPPORT GROUPS

Overeaters Anonymous (OA) OA is a fellowship whose purpose is to help each other recover from compulsive overeating. There are no dues. Offers face-to-face, online, and phone meetings.

Overeaters Anonymous Galveston- Bay Area
Meeting list available at www.oagalveston.org
Email: webmaster@oagalveston.org
Phone: (281) 557-0663, (281) 557-3881

Overeater Anonymous Houston Metro Area
Meeting list available at www.oahouston.org
Email oa@oahouston.org
Phone: (713) 973-6633

Food Addicts Anonymous (FAA) FAA is a fellowship whose purpose is to help each other to recover from food addiction. There are no dues or fees. Offers face-to-face meetings and phone meetings.

Meeting list available at www.foodaddictsanonymous.org
Email: faawso@bellsouth.net
Phone: (772) 878- 9657

OTHER RESOURCES

Houston Eating Disorders Specialists A community resource for identification of treatment providers, clinical services offered, and local treatment options.

www.houstoneds.org
Email: information@houstoneds.org
Phone: (832) 582-4730

United Way United Way assists in referrals to local resources for affordable care.
Phone: 211

CRISIS/ EMERGENCY RESOURCES

Crisis Hotlines Provide help to people in crisis, 24/ 7. Calls are confidential.

Crisis Hotline of Galveston	Crisis Hotline of Houston
Phone: (409) 741- TALK (8255)	Phone: (713) HOTLINE

Emergency Response: 9-1-1 Call 911 for self-harm, threat of suicide, and other life-threatening emergencies. Phone: 911

Appendix F: Demographic Data Collection Form

How old are you?	
What race and ethnicity do you consider yourself?	
Where were you born?	
What language was used most in your childhood home?	
Were any other languages frequently used?	
How many years of school have you finished?	
How tall are you?	
Have you ever weighed _____pounds or more? (PI will fill in the weight-for- height from Table 1, below)	
Have you had food cravings when you weren't pregnant or premenstrual?	

Table 1. *Weight in pounds at which the Body Mass Index (BMI) equals 35 for a given height in inches.*

Height in Inches	Weight in Pounds
58	167
59	173
60	179
61	185
62	191
63	197
64	204
65	210
66	216
67	223
68	230
69	236
70	243
71	250
72	258
73	265
74	272
75	279
76	287

BMI chart is adapted from US Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute. (N.D.) Body mass index table 1. Retrieved 2/23/2013 from www.nhlbi.nih.gov/guidelines/obesity/bmi_tbl.htm

Appendix G: Interview Guide

Topical probe:

Tell me whatever you would like to about your experiences with food cravings.

Prompts (for example):

Tell me more about…

Can you tell me about a time when…

I'm really interested in what you said about…

How (else) would you describe food cravings?

Hmmm.

Is there anything else you would want someone who doesn't know about experiences like yours to know?

Is there anything you thought about when you agreed to participate that you wondered if I'd ask about, or that you'd like to add?

Concluding questions:

Would it be okay with you if I contact you later if I have a question about anything that came up in the interview?

Do you think you might be available for another interview?

Wrap-up:

If something occurs to you later that you would like to share, I'd like to hear about. Please feel free to contact me. (PI will give PI's phone number and email address)

Literature Cited

Abraham, S. F., & Beumont, P. J. V. (1982). How patients describe bulimia or binge eating. *Psychological Medicine, 12*, 625-635.

Alberts, H. J. E. M., Mulkens, S., Smeets, M., & Thewissen, R. (2010). Coping with food cravings: Investigating the potential of a mindfulness-based intervention. *Appetite, 55*(1), 160-163. doi:10.1016/j.appet.2010.05.044

Alberts, H. J., Thewissen, R., & Raes, L. (2012). Dealing with problematic eating behaviour: The effects of a mindfulness-based intervention on eating behaviour, food cravings, dichotomous thinking and body image concern. *Appetite, 58*(3), 847-851. doi: 10.1016/j.appet.2012.01.009

Ali, M. M., Rizzo, J. A., & Heiland. F. W. (2013). Big and beautiful? Evidence of racial differences in the perceived attractiveness of obese females. *Journal of Adolescence, 36*, 539-549. doi: 10.1016/j.adolescence.2013.03.010

American Psychiatric Association. (2013). Feeding and eating disorders. *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition*. Retrieved May 12, 2015 from http://dsm.psychiatryonline.org.libux.utmb.edu/doi/full/10.1176/appi.books.9780890425596.dsm10

Anton, R. F. (1999). What is craving? *Alcohol Research and Health, 23*(3165-173).

Bacon, L. & Aphramor, L. (2011). Weight science: Evaluating the evidence for a paradigm shift. *Nutrition Journal, 10*:9. doi: 10.1186/1475-2891-10-9

Bacon, L., Stern, J. S., Van Loan, M. D., & Keim, N. L. (2005). Size acceptance and intuitive eating improve health for obese, female chronic dieters. *Journal of the American Dietetic Association, 105(*6), 929-936.

Bancroft, J. (1995). The menstrual cycle and the wellbeing of women. *Social Sciences & Medicine, 41*(6), 785-791.

Bancroft, J., & Rennie, D. (1993). The impact of oral contraceptives on the experience of perimenstrual mood, clumsiness, food craving and other symptoms. *Journal of Psychosomatic Research, 37*(2), 195-202.

Barry, D., Clarke, M., & Petry, N. M. (2009). Obesity and its relationship to addictions: Is overeating a form of addictive behavior? *The American Journal on Addictions, 18*, 431-451.

Barry, V. W., Baruth, M., Beets, M. W., Durstine, J. L., Liu, J., & Blair, S. N. (2014). Fitness vs. fatness on all-cause mortality: a meta-analysis. *Progress in Cardiovascular Diseases, 56*(4), 382-390. doi: 10.1016/j.pcad.2013.09.002

Barth, K. S., Rydin-Gray, S., Kose, S., Borckardt, J. J., O'Neil, P. M., Shaw, D., Madan, A., Budak, A., & George, M. S. (2011). Food cravings and the effects of left prefrontal repetitive transcranial magnetic stimulation using an improved sham condition. *Frontiers in Psychiatry, 2*:9. doi: 10.3389/fpsyt.2011.00009

Bomback, A. E. (2014). The contribution of applied social sciences to obesity stigma-related public health approaches. *Journal of Obesity 2014*, 1-9. doi:10.1155/2014/267286

Bosy-Westphal, A., Schautz, B., Lagerpusch, M., Pourhassan, M., Braun, W., Goele, K., Heller, M., Glüer, C. C., & Müller, M. J. (2013). Effect of weight loss and regain on adipose tissue distribution, composition of lean mass and resting energy expenditure in young overweight and obese adults. *International Journal of Obesity, 37*(10), 1371-1377. doi: 10.1038/ijo.2013.1

Boutelle, K. N., Kuckertz, J. M., Carlson, J., & Amir, N. (2014). A pilot study evaluating a one-session attention modification training to decrease overeating in obese children. *Appetite, 76*, 180-185. doi: 10.1016/j.appet.2014.01.075

Brewis, A. A. (2014). Stigma and the perpetuation of obesity. *Social Science & Medicine, 118*(2014), 152-158. doi: 10.1016/j.socscimed.2014.08.003

Brown, R. E. & Kuk, J. L. (2015). Consequences of obesity and weight loss: A devil's advocate position. *Obesity Reviews, 16*(1), 77-87. doi: 10.1111/obr.12232

Bruch, H. (1973). *Eating disorders: Obesity, anorexia nervosa, and the person within* (1st ed.). New York, NY: Basic Books.

Bryant, E. J., King, N. A., & Blundell, J. E. (2007). Disinhibition: its effect on appetite and weight regulation. *Obesity Reviews, 9*, 409-419.

Budak, A. R., & Thomas, S. E. (2009). Food craving as a predictor of "relapse" in the bariatric surgery population: A review with suggestions. *Bariatric Nursing and Surgical Patient Care, 4*(2), 115-121.

Cannon, W. B. & Washburn, A. L. (1993). An explanation of hunger. *Obesity Research, 1*(6), 494-500. (Original work published 1912)

Cawood, E. H. H., Bancroft, J., & Steel, J. M. (1993). Perimenstrual symptoms in women with diabetes mellitus and the relationship to diabetic control. *Diabetic Medicine, 10*(5), 444-448.

Carei, T. R., Fyfe-Johnson, A. L., Breuner, C. C., & Brown, M. A. (2010). Randomized controlled trial of yoga in the treatment of eating disorders. *Journal of Adolescent Health, 46*(2010), 346-351. doi: 10.106/j.adohealth.2009.08.007

Cepeda-Benito, A., Fernandez, M. C., & Moreno, S. (2003). Relationship of gender and eating disorder symptoms to reported cravings for food: construct validation of state and trait craving questionnaires in Spanish. *Appetite, 40*(1), 47-54.

Cepeda- Benito, A., Gleaves, D. H., Williams, T. L., & Erath, S. A. (2000). The development and validation of the state and trait food-cravings questionnaires. *Behavior Therapy, 31,* 153-173.

Cereda, E., Malavazos, A. E., Caccialanza, R., Rondanelli, M., Fatati, G. & Barichella, M. (2011). Weight cycling is associated with body fat excess and abdominal fat accumulation: a cross-sectional study. *Clinical Nutrition, 30*(6), 718-723. doi: 10.1016/j.clnu.2011.06.009

Cohen, I. T., Sherwin, B. B., & Fleming, A. S. (1987). Food cravings, mood, and the menstrual cycle. *Hormones & Behavior, 21,* 457-470.

Compulsive Overeaters Anonymous-HOW. (2009-2015). The 12 traditions of CEA-HOW. Retrieved April 1, 2015 from http://www.ceahow.org/content/12-traditions-cea-how

Corwin, R. L., & Hajnal, A. (2005). Too much of a good thing: Neurobiology of non-homeostatic eating and drug abuse. *Physiology and Behavior, 86,* 5-8.

Cowan, J. & Devine, C. (2008). Food, eating, and weight concerns of men in recovery from substance addiction. *Appetite, 50,* 33-42. doi:10.1016/j.appet.2007.05.006

Crowley, N. M., LePage, M. L., Goldman, R. L., O'Neil, P. M., Borckhardt, J. J., & Byrne, T. K. (2012). The food craving questionnaire-trait in a bariatric surgery seeking population and ability to predict post-surgery weight loss at six months. *Eating Behaviors, 13*, 366-370. doi: 10.1016/j.eatbeh.2012.07.003

D'Addario, C., Micioni Di Bonaventura, M. V., Puccia, M., Romano, A., Gaetani, S., Ciccocioppo, R., Cifani, C., &Maccarrone, M. (2014). Endocannabinoid signaling and food addiction. *Neuroscience and Biobehavioral Reviews 47*, 203-224. doi: 10.1016/j.neubiorev.2014.08.008

Daubenmier, J., Kristeller J., Hecht, F. M., Maninger, N., Kuwata, M., Jhaveri, K., Lustig, R. H., Kemeny, M., Karan, L., & Epel, E. (2011). Mindfulness intervention for stress eating to reduce cortisol and abdominal fat among overweight and obese women: An exploratory randomized controlled study. *Journal of Obesity, 2011*. doi: 10.1155/2011/651936

Davis, C., Curtis, C., Levitan, R. D., Carter, J. C., Kaplan, A. S., & Kennedy, J. L. (2011). Evidence that 'food addiction' is a valid phenotype of obesity. *Appetite, 57*(2011), 711-717. doi:10.1016/j.appet.2011.08.017

Delahanty, L. M., Meigs, J. B., Hayden, D., Williamson, D. A., Nathan, D. M., & DPP Research Group. (2002). Psychological and behavioral correlates of baseline BMI in the Diabetes Prevention Program. *Diabetes Care, 25*(11), 1992-1998.

DePiere, J. A., Puhl, R. M., & Luedicke, J. (2013). A new stigmatized identity? Comparisons of a "food addict" label with other stigmatized health conditions. *Basic and Applied Social Psychology, 35*(10), 10-21. doi:10.1080/01973533.2012.746148

Doyle, B., Fitzsimons, D., McKeown, P., & McAloon, T. (2011). Understanding dietary decision-making in patients attending a secondary prevention clinic following myocardial infarctions. *Journal of Clinical Nursing, 21*(1-2), 32-41.

Dittman, K. A., & Freedman, M. R. (2009). Body awareness, eating attitudes, and spiritual beliefs of women practicing yoga. *Eating Disorders, 17*(4), 273-292.

Drummond, D. C. (2001). Theories of drug craving, ancient and modern. *Addiction, 96*(1), 33-46. doi: 10.1046/j.1360-0443.2001.961333.x

Duarte, C., Pinto-Gouveia, J., & Ferreira, C. (2014). Escaping from body image shame and harsh self-criticism: Exploration of underlying mechanisms of binge eating. *Eating Behaviors, 15*(2014), 638-643.

Duncan, D. T., Wolin, K. Y., Scharoun-Lee, M., Ding, E. L., Warner, E. T., & Bennett, G. G. (2011). Does perception equal reality? Weight misperception in relation to weight-related attitudes and behaviors among overweight and obese US adults. *International Journal of Behavioral Nutrition and Physical Activity, 8*(20), 1-9.

Eisenberg, M. E., Neumark-Sztainer, D., & Story, M. (2003). Associations of weight-based teasing and emotional well-being among adolescents. *Archives of Pediatrics and Adolescent Medicine, 157*(8), 733-738. doi:10.1001/archpedi.157.8.733

Flook, L., Goldberg, S. B., Pinger, L., & Davidson, R. J. (2015). Promoting prosocial behavior and self-regulatory skills in preschool children through a mindfulness-based kindness curriculum. *Developmental Psychology, 51*(1), 44-51. doi: 10.1037/a0038256

Food Addicts Anonymous. (n.d.). FAA's twelve traditions. Retrieved April 1, 2015 from http://www.foodaddictsanonymous.org/faas-twelve-traditions

Food Addicts in Recovery Anonymous. (2015). Document 4: Sample FA meeting guide. Retrieved April 1, 2015 from http://www.foodaddicts.org/downloads/document4-samplefameetingformat%2014%200501.pdf

Freeland-Graves, J. H.., Nitzke, S., & Academy of Nutrition and Dietetics. (2013). Position of the academy of nutrition and dietetics: Total diet approach to healthy eating. *Journal of the Academy of Nutrition and Dietetics, 113*(2), 307-317. doi:10.1016/j.jand.2012.12.013

Gagnon-Girouard, M. P., Bégin, C., Provencher, V., Tremblay, A., Mongeau, L., Boivin, S., & Lemieux, S. (2010). Psychological impact of a "Health-at-Every-Size" intervention on weight-preoccupied overweight/obese women. *Journal of Obesity, 2010,* Article ID 928097. doi:10.1155/2010/928097

Garland, E. J., Remick, R. A., & Zis, A. P. (1988). Weight gain associated with antidepressants and lithium. *Journal of Clinical Psychopharmacology, 8*(5), 323-329.

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

Gearhardt, A. N., Corbin, W. R., & Brownell, K. D. (2009). Preliminary validation of the Yale Food Addiction Scale. *Appetite, 52*(2), 430-436. doi: 10.1016/j.appet.2008.12.003

Gearhardt, A. N., Roberto, C. A., Seamans, M. J., Corbin, W. R., & Brownell, K. D. (2013). Preliminary validation of the Yale Food Addiction Scale for children. *Eating Behaviors, 14*(4), 508-512. doi: 10.1016/j.eatbeh.2013.07.002

Gendall, K. A., Joyce, P. R., & Sullivan, P. F. (1997). Impact of Definition on Prevalence of Food Cravings in a Random Sample of Young Women. *Appetite, 28*(1), 63-72.

Gendall, K. A., Joyce, P. R., Sullivan, P. F., & Bulik, C. M. (1998). *International Journal of Eating Disorders, 23*(4), 353-360.

Gendall, K. A., Sullivan, P. F., Joyce, P. R., & Bulik, C. M. (1997). Food cravings in women with a history of anorexia nervosa. *International Journal of Eating Disorders, 22(*4), 403-409.

Gendall, K. A., Sullivan, P. F., Joyce, P. R., Fear, J. L., & Bulik, C. M. (1997). Psychopathology and personality of young women who experience food cravings. *Addictive Behaviors, 22*(4), 545-555.

Gilhoody, C. H., Das, S. K., Golden, J. K., McCrory, M. A., Dallal, G. E., Saltzman, E., Roberts, S. B. (2007). Food cravings and energy regulation: the characteristics of craved foods and their relationship with eating behaviors and weight change during 6 months of dietary energy restriction. *International Journal of Obesity, 31,* 1849-1858.

Giuliani, N. R., Calcott, E. T. & Berkman, E. T. (2013). Piece of cake: Cognitive reappraisal of food craving. *Appetite, 64,* 56-61. doi: 10.1016/j.appet. 2012.12.020

Glaser, B. G. (1978). *Theoretical sensitivity.* Mill Valley, CA: Sociology Press.

Glaser, B. G. (1992). *Basics of grounded theory analysis.* Mill Valley, CA: Sociology Press.

Glaser, B. G. (1998). *Doing grounded theory: Issues and discussions.* Mill Valley, CA: Sociology Press.

Glaser, B. (2009). *Jargonizing: Using the grounded theory vocabulary*. Mill Valley, CA: Sociology Press.

Glaser, B. G. (2011). The constant comparative method of qualitative analysis. In J. A. Holton & B. G. Glaser (Eds.) *The grounded theory review methodology reader: Selected papers 2004-2011*. Mill Valley, CA: Sociology Press.

Glaser, B. G. (2014). *Memoing: A vital grounded theory procedure.* Mill Valley, CA: Sociology Press.

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory: Strategies for qualitative research.* Piscataway, NJ: Aldine Transaction.

Godsey, J. (2013). The role of mindfulness-based interventions in the treatment of obesity and eating disorders. *Complementary Therapies in Medicine, 21,* 430-439.

Goffman, E. (1986). *Stigma: Notes on the management of spoiled identity.* New York, NY: Simon & Schuster, Inc. (Original work published 1963)

Goldman, R. L., Borckardt, J. J., Frohman, H. A., O'Neil, P. M., Madan, A., Campbell, L. K., Budak, A., & George, M. S. (2011). Prefrontal cortex transcranial direct current stimulation (tDCS) temporarily reduces food cravings and increases the self-reported ability to resist food in adults with frequent food craving. *Appetite, 56(*3), 741-746. doi:10.1016/j.appet.2011.02.013

Greenway, F. L., Fujioka, K., Plodowski, R. A., Mudaliar, S., Guttadauria, M., Erickson, J., Kim, D. D., & Dunayevich, E. (2010). Effect of naltrexone plus bupropion on weight loss in overweight and obese adults (COR-I): A multicenter, randomized, double-blind, placebo-controlled, phase 3 trial. *The Lancet, 376,* 595-605.

Gudzune, K. A., Bennett, W. L., Cooper, L. A., & Bleich, S. N. (2014). Perceived judgement about weight can negatively influence weight loss: a cross-sectional study of overweight and obese patients. *Preventive Medicine, 62*, 103-107. doi: 10.1016/j.ypmed.2014.02.001

Harries, J. M., & Hughes, T. F. (1958). Enumeration of the 'cravings' of some pregnant women. *British Medical Journal, July 5*, 39.

Hendley, Y., Zhao, L., Coverson, D. L., Din-Dzietham, R., Morris, A., Quyyumi, A. A., Gibbons, G. H., & Vaccarino, V. (2011). Differences in weight perception among blacks and whites. *Journal of Women's Health, 20*(12), 1805-1811. doi; 10.1089/jwh.2010.2262

Herman, C. P., & Mack, D. (1975). Restrained and unrestrained eating. *Journal of Personality, 43*(4), 647-660.

Hertz, P., Addad, M., & Ronel, N. (2012). Attachment styles and changes among women members or Overeaters Anonymous who have recovered from binge eating disorder. *Health and Social Work 2012*, 110-122. doi: 10.1093/hsw/hls019

Hill, A. J., & Heaton-Brown, L. (1994). The experience of food craving: a prospective investigation in healthy women. [P]. *Journal of Psychosomatic Research, 38*(8), 801-814.

Hill, A. J., Weaver, C. F. L., & Blundell, J. E. (1991). Food craving, dietary restraint and mood. *Appetite, 17*(3), 187-197.

Himes, S. M., Grothe, K. B., Clark, M. M., Swain, J. M., Collazo-Clavell, M. L., & Sarr, M. G. (2015). Stop regain: A pilot psychological intervention for bariatric patients experiencing weight regain. *Obesity Surgery, 25*(5), 922-927. doi: 10.1007/s11695-015-1611-0

Holt, R. I., & Peveler, R. C. (2009). Obesity, serious mental illness and antipsychotic drugs. *Diabetes, Obesity and Metabolism, 11*, 665-679.

Iancu, I., Cohen, E., Yehuda, Y. B., & Kotler, M. (2006). Treatment of eating disorders improves eating symptoms but not alexithymia and dissociation proneness. *Comprehensive Psychiatry, 47*(2006), 189-193.

Ifland, J., Sheppard, K., & Wright, T. (2012). From the front lines: The impact of refined food addiction on well-being. In K. D. Brownell & M. S. Gold (Eds.), *Food and addiction: A comprehensive handbook* (pp. 349-353). New York, NY: Oxford University Press.

Jellinek, E. M., Isbell, H., Lundquist, G., Tiebout, H. M., Duchene, H., Mardones, J., Macleod, L. D. (1955). The "craving" for alcohol: A symposium by members of the WHO Expert Committee on Mental Health and on Alcohol. *Quarterly Journal of Studies on Alcohol, 16,* 34-66.

Kavanagh, D. J., Andrade, J., & May, J. (2005). Imaginary relish and exquisite torture: The Elaborated Intrusion Theory of Desire. *Psychological Review, 112*(2), 446-467. doi: 10.1037/0033-295X.112.2.446

Kekic, M., McClelland, J., Campbell, I., Nestler, S., Rubia, K., Davis, A. S., & Schmidt, U. (2014). The effects of prefrontal cortex transcranial direct current stimulation (tDCS) on food craving and temporal discounting in women with frequent food cravings. *Appetite, 78C*, 55-62. doi: 10.1016/j.appet.2014.03.010

Kelley, A. E., Schiltz, C. A., & Landry, C. F. (2005). Neural systems recruited by drug- and food-related cues: Studies of gene activation in corticolimbic regions. *Physiology and Behavior, 86*, 11-14.

Kelly, A. C. & Carter, J. C. (2012). Why self-critical patients present with more severe eating disorder pathology: The mediating role of shame. *British Journal of Clinical Psychology, 52*(2), 148-161. doi: 10.1111/bjc.12006

Kelly, A. C., Carter, J. C., & Borairi, S. (2014). Are improvements in shame and self-compassion early in eating disorders treatment associated with better outcomes? *International Journal of Eating Disorders, 47*(1), 54-64. doi: 10.1002/eat.22196

Kemps, E., & Tiggeman, M. (2007). Modality-specific imagery reduces cravings for food: An application of the elaborated intrusion theory of desire to food craving. *Journal of Experimental Psychology, Applied, 13*(2), 95-104. doi: 10.1037/1076-898X.13.2.95

Kemps, E., & Tiggeman, M. (2010). A cognitive experimental approach to understanding and reducing food cravings. *Current Directions in Psychological Science, 19*(2), 86-90. doi: 10.1177/0963721410364494

Kemps, E., & Tiggeman, M. (2013). Olfactory stimulation curbs food cravings. *Addictive Behaviors, 38*, 1550-1554. doi: 10.1016/j.addbeh.2012.06.001

Kemps, E., & Tiggeman, M. (2014). Sustained effects of attentional retraining on chocolate consumption. *Journal of Behavior Therapy and Experimental Psychiatry*. Advance online publication. doi:10.1016/j.jbtep.2014.12.001

Kemps, E., & Tiggeman, M. (2015). A role for mental imagery in the experience and reduction of food cravings. *Frontiers in Psychiatry, 5*, Article 193. doi: 10.3389/fpsyt.2014.00193

Keyes, K. M., Krueger, R. F., Grant, B. F., & Hasin, D. S. (2011). Alcohol craving and the dimensionality of alcohol disorders. *Psychological Medicine, 41*(3), 629-640. doi: 10.1017/S003329171000053X

Kluck, A. S. (2010). Family influence on disordered eating: The role of body image dissatisfaction, *Body Image, 7*(2010), 8-14. doi: 10.1016/j.bodyim.2009.09.009

Koch, T., Kralik, D., & Sonnack, D. (1999). Women living with type II diabetes: the intrusion of illness. *Journal of Clinical Nursing, 8,* 712-722.

Kozak, A. T. & Fought, A. (2011). Beyond alcohol and drug addiction: Does the negative trait of low distress tolerance have an association with overeating? *Appetite, 57*(2011), 578-581. doi: 10.1016/j.appet.2011.07.008

Kozlowski, L. T., Mann, R. E., Wilkinson, D. A., & Poulos, C. X. (1989). "Cravings" are ambiguous: Ask about urges or desires. *Addictive Behaviors, 14,* 443-445.

Kubiszewski, V., Fontaine, R., Potard, C. & Gimenes, G. (2014). Bullying, sleep/wake patterns and subjective sleep disorders: Findings from a cross-sectional survey. *Chronobiology International, 31*(4), 542-553. doi:10.3109/07420528.2013.877475

La Mela, C., Maglietta, M., Castellini, G., Amoroso, L., & Lucarelli, S. (2010). Dissociation in eating disorders: Relationship between dissociative experiences and binge-eating episodes. *Comprehensive Psychiatry, 51*(2010), 393-400. doi:10.1016/j.comppsych.2009.09.008

Lacaille, J., Ly, J., Bourkas, S., & Knauper, B. (2014). The effects of three mindfulness skills on chocolate cravings. *Appetite, 76,* 101-112. doi: 10.1016/j.appet.2014.01.072

Landis, A. M., Parker, K. P., & Dunbar, S. B. (2009). Sleep, hunger, satiety, food cravings, and caloric intake in adolescents. *Journal of Nursing Scholarship, 41*(2), 115-123.

Latner, J. D., Mond, J. M., Kelly, M. C., Haynes, S. N., & Hay, P. J. (2014). The Loss of Control Over Eating Scale: Development and psychometric evaluation. *International Journal of Eating Disorders, 47*(6), 647-659.

Latner, J. D., Puhl, R. M., Murakami, J. M., & O'Brien, K. S. (2014). Food addiction as a causal model of obesity: Effects on stigma, blame, and perceived psychopathology. *Appetite, 77*(1), 79-84. doi: 10.1016/j.appet.2014.03.004

Lowman, C., Hunt, W. A., Litten, R. Z., & Drummond, D. C. (2000). Research perspectives on alcohol craving: an overview. *Addiction, 95*(Supplement 2), S45-S54.

Mann, T., Tomiyama, A. J., Westling, E., Lew, A. M., Samuels, B., & Chatman, J. (2007). Medicare's search for obesity treatments: Diets are not the answer. *American Psychologist, 62*(3), 220-233. doi: 10.1037/0003-066X.62.3.230

Martin, C. K., O'Neil, P. M., Pawlow, L., Martin, C. K., O'Neil, P. M., & Pawlow, L. (2006). Changes in food cravings during low-calorie and very-low-calorie diets. *Obesity, 14*(1), 115-121.

Martin, C. K., O'Neil, P. M., Tollefson, G., Greenway, F. L., & White, M. A. (2008). The association between food cravings and consumption of specific foods in a laboratory taste test. *Appetite, 51*(2), 324-326.

Massey, A. & Hill, A. J. (2012). Dieting and food craving: A descriptive, quasi-prospective study. *Appetite, 58*(3), 781-785. doi: 10.1016/j.appet.2012.01.020

May, J., Andrade, J., Kavanagh, D. J., Feeney, G. F. X., Gullo, M. J., Statham, D. J., Skorka-Brown, J., Connolly, J. M., Cassimatis, M., Young, R. M., & Connor, J. P. (2014). The craving experience questionnaire: A brief, theory-based measure of consummatory behavior and craving. *Addiction, 109*, 728-735. doi: 10.1111/add.12472

McIver, S., McGartland, M., & O'Halloran, P. (2009). "Overeating is not about the food": Women describe their experience of a yoga treatment program for binge eating. *Qualitative Health Research, 19*(9), 1234-1245. doi: 10.1177/1049732309343954

Merlo, L. J., Klingman, C., Malasanos, T. H., & Silverstein, J. H. (2009). Exploration of food addiction in pediatric patients: A preliminary investigation. *Journal of Addiction Medicine, 3*(1), 26-32. doi: 10.1097/ADM.0b013e31819638b0

Meule, A., Freund, R., Skirde, A. K., Vogele, C., & Kubler, A. K. (2012). Heart rate variability biofeedback reduces food cravings in high food cravers. *Applied Psychophysiology and Biofeedback, 37*, 241-251. doi: 10.1007/s10484-012-9197-y

Meule, A., Hermann, T. & Kubler, A. (2014). A short version of the Food Cravings Questionnaire-Trait: The FCQ-T-reduced. *Frontiers in Psychology, 5*, Article 190, 1-10.

Mogul, A., Irby, M. B., & Skelton, J. A. (2014). A systematic review of pediatric obesity and family communication through the lens of addiction literature. *Childhood Obesity, 10*(3), 197-206. doi: 10.1089/chi.2013.0157

Moreno, S., Rodriguez, S., Fernandez, M. C., Tamez, J., & Cepeda-Benito, A. (2008). Clinical validation of the Trait and State versions of the Food Craving Questionnaire. *Assessment, 15*(3), 375-387.

Moreno, S., Warren, C. S., Rodriguez, S., Fernandez, M., & Cepeda-Benito, A. (2009). Food cravings discriminate between anorexia and bulimia nervosa. Implications for "success" versus "failure" in dietary restriction. *Appetite, 52*(3), 588-594.

Morton, J. H. (1950). Premenstrual tension. *American Journal of Obstetrics and Gynecology, 60*(2), 343-352.

Morton, J. H., Additon, H., Addison, R. G., Hunt, L., & Sullivan, J. J. (1953). A clinical study of premenstrual tension. *American Journal of Obstetrics and Gynecology, 65*(6), 1182- 1191.

Mursell, J. L. (1925). Contributions to the psychology of nutrition I: Hunger and appetite. *Psychological Review, 32*(4), 317-333.

Neumark-Sztainer, D., Story, M., Perry, C., & Casey, M. A. (1999). Factors influencing food choices of adolescents: Findings from focus-group discussions with adolescents. *Journal of the American Dietetic Association, 99*(8).

Neumark-Sztainer, D., Bauer, K. W., Friend, S., Hannan, P. J., Story, M., & Berge, J. M. (2010). Family weight talk and dieting: How much do they matter for body dissatisfaction and disordered eating behaviors in adolescent girls? *Journal of Adolescent Health, 47*(3), 270-276. doi: 10.1016/j.adohealth.2010.02.001

Nijs, I. M., Franken, I. H., & Muis, P. (2008). Food cue-elicited brain potentials in obese and healthy weight individuals. *Eating Behaviors, 9*, 462-470

Ogden, C. L., Carroll, M. D., Kit, B. K., & Flegal, K. M. (2013). *Prevalence of obesity among adults: United States, 2011-2012*. (NCHS Data Brief, No. 131). Retrieved May 25, 2015 from http://www.cdc.gov/nchs/data/databriefs/db131.pdf

Olson, E. A., Visek, A. J., McDonnell, K. A., & DiPietro, L. (2012). Thinness expectations and weight cycling in a sample of middle-aged adults. *Eating Behaviors, 13*(2), 142-145. doi: 10.1016/j.eatbeh.2011.11.013

O'Reilly, G. A., Cook, L., Spruijt-Metz, D., & Black, D. S. (2014). Mindfulness-based interventions for obesity-related eating behaviours: A literature review. *Obesity Reviews, 15*, 453-461.

Papachristou, H., Nederkoorn, C., Beunen, S., & Jansen, A. (2013). Dissection of appetitive conditioning: Does impulsivity play a role? *Appetite, 69*, 45-53. doi: 10.1016/j.appet.2013.05.011

Pelchat, M. L. (1997). Food cravings in young and elderly adults. *Appetite, 28*(2), 103-113.

Pelchat, M. L. (2000). Dietary monotony and food cravings in young and elderly adults. *Physiology and Behavior, 68*, 353- 359.

Pelchat, M. L., Johnson, A., Chan, R., Valdez, J., & Ragland, J. D. (2004). Images of desire: Food-craving activation during fMRI. *Neuroimage, 23*, 1486-1493. doi: 10.1016/j.neuroimage.2004.08.023

Pepino, M. Y., Finkneiner, S., & Mennella, J. A. (2009). Similarities in food cravings and mood states between obese women and women who smoke tobacco. *Behavior and Psychology, 17*(6), 1158-1163.

Pickens, R. W., & Johanson, C. E. (1992). Craving: Consensus of status and agenda for future research. *Drug and Alcohol Dependence, 30*, 127-131.

Puhl, R. M. & Heuer, C. A. (2010). Obesity stigma: Important considerations for public health. *American Journal of Public Health, 100*(6), 1019-1028.

Puhl, R. M. & King, K. M. (2013). Weight discrimination and bullying. *Best Practice and Research Clinical Endocrinology and Metabolism, 27*, 117-127.

Puhl, R. M. & Luedicke, J. (2014). Parental support for policy measures and school-based efforts to address weight-based victimization of overweight youth. *International Journal of Obesity, 38*(4), 531-538. doi: 10.1038/ijo.2013.207

Quick, V. M. & Byrd-Bredbenner, C. (2014). Disordered eating, socio-cultural media influencers, body image, and psychological factors among a racially/ethnically diverse population of college women. *Eating Behaviors, 15*, 37-41. doi: 10.1016/j.eatbeh.2013.10.005

Randolph, T. G. (1956). The descriptive features of food addiction: Addictive eating and drinking. *Quarterly Journal of Studies on Alcohol, 17*(2), 198-224.

Rankin, H., Hodgson, R., & Stockwell, T. (1979). The concept of craving and its measurement. *Behavioral Research & Therapy, 17*, 389-396.

Ratcliffe, D. & Ellison, N. (2015). Obesity and internalized weight stigma: A formulation model for an emerging psychological problem. *Behavioural and Cognitive Psychotherapy, 43*, 239-252.doi: 10.1017/S13524658133000763

Robinson, T. E. & Berridge, K. C. (1993). The neural basis of drug craving: an incentive-sensitization theory of addiction. *Brain Research Reviews, 18*(3), 247-291.

Rodriguez, S., Warren, C. S., Moreno, S., Cepeda-Benito, A., Gleaves, D. H., del Carmen Fernandez, M. (2007). Adaptation of the Food-Craving Questionnaire-Trait for the assessment of chocolate cravings: Validation across British and Spanish women. *Appetite*, *49*(1), 245-250.

Rodriguez-Martin, B. C., Gomez-Quintana, A., Diaz-Martinez, G., & Molerio-Perez, O. (2013). Bibliotherapy and food cravings control. *Appetite, 65*, 90-95. doi: 10.1016/j.appet.2013.02.006

Ronel, N. & Libman, G. (2003). Eating disorders and recovery: Lessons from Overeaters Anonymous. *Clinical Social Work Journal, 31*(2), 155-171.

Roosen, M. A., Safer, D., Cebolla, A., & van Strien, T. (2012). Group dialectical behavior therapy adapted for obese emotional eaters. *Nutrición Hospitalaria, 27*(4), 1141-1147. doi: 10.3305/nh.2012.27.4.5843

Rosen, E. F. & Petty, L. C. (1994). Dissociative States and Disordered Eating. *American Journal of Clinical Hypnosis*, *36*(4), 266-275.

Russell-Mayhew, S.., von Ranson, K. M., & Masson, P. C. (2010). How does Overeaters Anonymous help its members? A qualitative analysis. *European Eating Disorders Review, 18,* 33-44.

Safer, D. L., Telch, C. F., & Chen, E. Y. (2009). *Dialectical behavior therapy for binge eating and bulimia*. New York, NY: The Guilford Press.

Schonert-Reichl, K. A., Oberle, E., Lawlor, M. S., Abbott, D., Thomson, K., Oberlander, T. F., & Diamond, A. (2015). Enhancing cognitive and social-emotional development through a simple-to-administer mindfulness-based school program for elementary school children: A randomized controlled trial. *Developmental Psychology, 51*(1), 52-66. doi: 10.1037/a0038454

Schulte, E. M., Avena, N. M., & Gearhardt, A. N. (2015). Which foods may be addictive? The roles of processing, fat content, and glycemic load. *PLOS One, 10*(2): e0117959. doi: 10.1371/journal

Shorka-Brown, J., Andrade, J., & May, J. (2014). Playing 'Tetris' reduces the strength, frequency, and vividness of naturally-occurring cravings. *Appetite, 76,* 161-165. doi: 10.1016/j.appet.2014.01.073

Silvers, J. A., Insel, C., Powers, A., Franz, P., Weber, J., Mischel, W., Casey, B. J., & Ochsner, K. N. (2014). Curbing craving: Behavioral and brain evidence that children regulate craving when instructed to do so but have higher baseline craving than adults. *Psychological Science, 25*(10), 1932-1942. doi: 10.1177/0956797614546001

Skinner, M. D., & Aubin, H. J. (2010). Craving's place in addiction theory: Contributions of the major models. *Neuroscience and Biobehavioral Reviews, 34,* 606-623.

Smith, G. P. (1997). Eating and the American Zeitgeist. *Appetite, 29,* 191- 200.

Snapper, I. (1955). Food preferences in man: Special cravings and aversions. *Annals of the New York Academy of Sciences, 63*(1), 92-106.

Snel, E. & Kabat-Zinn, M. (2013). *Sitting still like a frog: Mindfulness exercises for kids (and their parents).* Boston, MA: Shambhala Publications.

Stunkard, A. J., & Messick, S. (1985). The three-factor eating questionnaire to measure dietary restraint, disinhibition, and hunger. *Journal of Psychosomatic Research, 29,* 71-83.

Stuart, D. M. (1962). To depress the craving for food. *The American Journal of Nursing, 62*(3), 88-92.

Suler, J. & Barthelomew, E. (1986). The ideology of Overeaters Anonymous. *Social Policy, 16* (Spring), 48- 53.

Sutin, A. R. & Terracciano, A. (2013). Perceived weight discrimination and obesity. *PLoS One, 8*(7), e77048. doi: 10.1371/journal.pone.0070048

Temple, J. L., Bulkley, A. M., Badawy, R. L., Krause, N., McCann, S., & Epstein, L. H. (2009). Differential effects of daily snack food intake on the reinforcing value of food in obese and nonobese women. *The American Journal of Clinical Nutrition, 90,* 304-313.

Toll, B. A., Kataluk, N. A., Williams- Piehota, P., & O'Malley, S. (2008). Validation of a scale for the assessment of food cravings among smokers. *Appetite, 50,* 25-32.

Tomkins, S. S. (2008). *Affect imagery consciousness: The complete edition*. New York, NY: Springer Publishing Company. (Original work published as *Affect imagery consciousness* [Volume 2]: *The negative emotions*, 1963)

Trinko, R., Sears, R. M., Guarnieri, D. J., & Dileone, R. J. (2007). Neural mechanisms underlying obesity and drug addiction. *Physiology and Behavior, 91,* 499-505.

Tylka, T. L., Annunziato, R. A., Burgard, D., Danielsdottir, S., Shuman, E., Davis, C., & Calogero, R. M. (2014). The weight-inclusive versus weight-normative approach to health: Evaluating the evidence for prioritizing well-being over weight loss. *Journal of Obesity, 2014,* Article ID 983495. doi: 10.1155/2014/983495

Tylka, T. L., Russell. H. L., & Neal, A. A. (2015). Self-compassion as a moderator of thinness-related pressures' associations with thin-ideal internalization and disordered eating. *Eating Behaviors, 17*(2015), 23-26.

US Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute. (N.D.) Body mass index table 1. Retrieved 2/23/2013 from http://www.nhlbi.nih.gov/guidelines/obesity/bmi_tbl.htm

Van den Eynde, F., Claudino, A. M., Mogg, A., Stahl, D., Ribiero, W., Uher, R., Campbell, I., & Schmidt, U. (2010). Repetitive transcranial magnetic stimulation reduces cue-induced food craving in bulimic disorders. *Biological Psychiatry, 67*(8), 793-795. doi: 10.1016/j.biopsych.2009.11.023

Van Gucht, D., Baeyens, F., Hermans, D., & Beckers, T. (2013). The inertia of conditioned craving: Does context modulate the effect of counter-conditioning. *Appetite, 65*, 51-57. doi: 10.1016/j.appet.2013.01.019

van Strien, T., Frijters, J. E., Bergers, A. P., & Defares, P. B. (1986). Dutch eating behaviour questionnaire for assessment of restrained, emotional and external eating behaviour. *International Journal of Eating Disorders, 5,* 295- 315.

Vander Wal, J. S., Johnston, K. A., & Dhurandhar, N. V. (2007). Psychometric properties of the State and Trait Food Cravings Questionnaires among overweight and obese persons. *Eating Behaviors, 8*, 211-223.

Vartanian, L. R. & Smyth, J. M. (2013). Primum non nocere: First do no harm. *Bioethical Inquiry, 10*, 49-57.

Verheul, R., Van Der Brink, W., & Geerlings, P. (1999). A three-pathway psychobiological model of craving for alcohol. *Alcohol & Alcoholism, 34*(2), 197-222.

Volkow, N. D., & Wise, R. A. (2005). How can drug addiction help us understand obesity? *Nature Neuroscience, 8*(5), 555-560.

Wallace, L. M., Masson, P.C., Safer, D.L., & von Ranson, K. M. (2014). Change in emotion regulation during the course of treatment predicts binge abstinence in guided self-help dialectical behavior therapy for binge eating disorder. *Journal of Eating Disorders, 2014*(2), 35. doi: 10.1186/s40337-014-0035-x

Weingarten, H. P., & Elston, D. (1990). The phenomenology of food cravings. *Appetite, 15*(3), 231-246.

Weingarten, H. P., & Elston, D. (1991). Food cravings in a college population. *Appetite, 17*(3), 167-175.

Werdell, P. (2012). From the front lines: A clinical approach to food and addiction. In K. D. Brownell & M. S. Gold (Eds.), *Food and addiction: A comprehensive handbook* (pp. 354-359). New York, NY: Oxford University Press.

White, M. A., & Grilo, C. M. (2005). Psychometric properties of the Food Craving Inventory among obese patients with binge eating disorder. *Eating Behaviors, 6*(3), 239-245.

White, M. A., Whisenhunt, B. L., Williamson, D. A., Greenway, F. L., & Netemeyer, R. G. (2002). Development and validation of the Food- Craving Inventory. *Obesity Research, 10*(2), 107-114.

Wurtman, J. J. (1988a). Carbohydrate craving, mood changes, and obesity. *Journal of Clinical Psychiatry, 49*(*Suppl.*), 37-39.

Wurtman, J. J. (1988b). Carbohydrate cravings: a disorder of food intake and mood. *Clinical Neuropharmacology, 11*(*Suppl. 1)*, S139-145.

Wurtman, J. J. (1990). Carbohydrate craving. Relationship between carbohydrate intake and disorders of mood. *Drugs, 39*(*Suppl. 3*), 49-52.

Wurtman, J. J., Brzezinski, A., Wurtman, R. J., & Laferrere, B. (1989). Effect of nutrient intake on premenstrual depression. *American Journal of Obstetrics & Gynecology, 161*(5), 1228-1234. doi: 0002-9378(89)90671-6 [pii]

Wurtman, J. J., & Wurtman, R. J. (1984). d-Fenfluramine selectively decreases carbohydrate but not protein intake in obese subjects. *International Journal of Obesity, 8*(*Suppl. 1*), 79-84.

Wurtman, R. J. (1988). Effects of their nutrient precursors on the synthesis and release of serotonin, the catecholamines, and acetylcholine: Implications for behavioral disorders. *Clinical Neuropharmacology, 11*(*Suppl. 1*), S187-193.

Wurtman, R. J., O'Rourke, D., & Wurtman, J. J. (1989). Nutrient imbalances in depressive disorders. Possible brain mechanisms. *Annals of the New York Academy of Sciences, 575*, 75-82.

Wurtman, R. J., & Wurtman, J. J. (1986). Carbohydrate craving, obesity and brain serotonin. *Appetite, 7*(*Suppl*,), 99-103.

Wurtman, R. J., & Wurtman, J. J. (1988). Do carbohydrates affect food intake via neurotransmitter activity? *Appetite, 11*(*Suppl 1*), 42-47.

Wurtman, R. J., & Wurtman, J. J. (1996). Brain serotonin, carbohydrate-craving, obesity and depression. *Advances in Experimental Medicine and Biology*, *398*, 35-41.

Wurtman, R. J., & Wurtman, J. J. (1998). Serotoninergic mechanisms and obesity. *Journal of Nutritional Biochemistry, 9*(9), 511-515.

Yoga for Families (Director) & Diego, G. (Director). (2009). *Yoga for families: Connect with your kids* [DVD]. United States: Bayview Entertainment/Widowmaker

Yokum, S. & Stice, E. (2013). Cognitive regulation of food craving: Effects of three cognitive reappraisal strategies on neural response to palatable foods. *International Journal of Obesity, 37*(12), 1565-1570. doi: 10.1038/ijo.2013.39

Young, P. T. (1933). Food preferences and the regulation of eating. *Journal of Comparative Psychology, 15*(1), 167-176.

Vita

Kelly C. Cowling

Born:	October 27, 1963 in Houston, Texas
Parents:	Martha Long Cowling and Richard Leonidas Cowling
High School:	The Kinkaid School, Houston, Texas
Colleges:	Rice University, Houston, Texas
	St. John's College, Santa Fe, New Mexico
	Cabrillo Community College, Aptos, California
	Houston Community College, Houston, Texas
	Texas Woman's University, Houston, Texas
	University of Texas Medical Branch, Galveston, Texas
Degrees:	Bachelor of Arts, Liberal Arts
	Bachelor of Science in Nursing
	Master of Science in Nursing
Publications:	None to date
Professional:	Certified Nurse Midwife
	Provided Maternal-Child Health Services from 1995 to 2015:
	Baylor College of Medicine, Houston, Texas
	Indian Health Service, Chinle, Arizona
	Indian Health Service, Tuba City, Arizona
	Holy Family Birth Center, Weslaco, Texas
	University of Texas Medical Branch, Galveston, Texas
	Bayshore Medical Center, Pasadena, Texas

This dissertation was typed by Kelly C. Cowling