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OVEREATING AS COPING AND STRESSOR

IN OVERWEIGHT CONTROL

by

MARGOT R. SOLOMON

DISSERTATION

Submitted in partial satisfaction of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

NURSING

in the

GRADUATE DIVISION

of the

UNIVERSITY OF CALIFORNIA

~~San Francisco~~

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OVEREATING AS COPING AND STRESSOR IN OVERWEIGHT CONTROL

by

Margot R. Solomon, RN, MS, PhD Candidate

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DEDICATION

To be what we are and to become what we are capable of becoming is the only end of life.

Robert Louis Stevenson

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I wish to recognize and extend my sincere gratitude to the many persons whose direct or indirect contributions to this study made it possible.

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OVEREATING AS COPING AND STRESSOR IN OVERWEIGHT CONTROL[1]

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School of Nursing, 1992.

ABSTRACT

Although the coping function of overeating has been recognized, it has not been studied in the context of a stress and coping perspective. That overeating is a coping response to stress, and also has stressful effects itself, are the central ideas of a coherent set of propositions tested in this study. Two coping repertoires are assumed: one to mediate the stressful effects of negatively appraised life events; and a second, comprised of overweight control strategies, to cope with the stressful effects of overeating. Patterns of typical overeating episodes, and the individual's concerns with respect to them, were also studied.

A cross-sectional survey of 79 subjects was conducted. The subjects were primarily Caucasian, young-adult/middle-aged, middle-income women (mean age = 35.24; S.D. = 7.761) employed in clerical, middle management, and nursing

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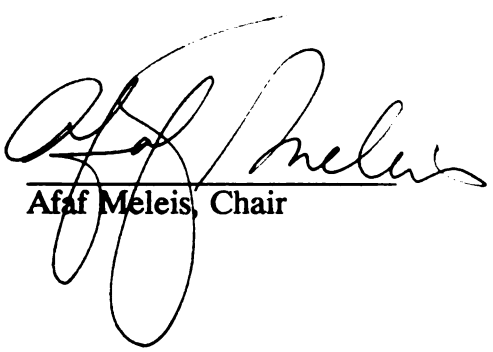
capacities. A weight history interview, health diary, and five standardized instruments were vehicles for data collection. Hierarchical analysis demonstrated that 45% of the variance in negative mood states was explained by the study model. Regression analyses indicated that: 1) Stressors influence the worsening of negative mood states; 2) some coping styles are related to negative mood states - at times inversely; and 3) overeating is associated with negative mood states in the context of frequent use of overweight control strategies. Through content analysis of the interview data, preconditions, patterns, functions, consequences, and responses to overeating were identified.



Afaf Meleis, Chair

Margot Solomon

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CHAPTER 1

INTRODUCTION

Background and Significance

It is, at times, an amusing matter of conventional wisdom that overeating is a coping response to stress. However, this truism belies the complexity of the phenomenon and the gravity of its impact. Research on eating and emotion also recognizes the coping function of overeating (Edelman, 1981; Hockley, 1979; Loro & Orleans, 1981), but there is a major rift in knowledge of its fit and dynamics within a stress and coping framework. In this study, overeating, as both a coping behavior and a stressor itself, is considered within a coherent set of propositions, embedded in a stress and coping perspective. Previous research is also extended by the more extensive use of both quantitative and qualitative methods.

Although our experience may inform us that overeating is commonplace and benign, and does not always result in overweight, it is a behavior with a broad range of severity. At least through its effects on weight fluctuations and the development of overweight, it may pose considerable threats to physical, mental, and social health (Lissner et al., 1991; Maddox, Back, & Liederman, 1968; National Institutes of Health, 1985; Rimm & White, 1979; Stunkard & Mendelson, 1967). Maintenance of a normal weight has been identified as a preventive health behavior which promotes longevity, regardless of age and health status (Belloc & Breslow, 1972).

Health risks directly associated with a range of forms and severity of overeating have yet to be determined. The prevalence of overeating is also unknown.

A clarification of what is meant by "overweight" puts its prevalence in perspective. It is usually considered that individuals who are 20% to 30% overweight are obese, since at that level threats to health are manifest (Edelman, 1981; Loro & Orleans, 1981). Obesity connotes excessive body fat, while overweight refers only to excessive weight. The terms "overweight" and "obese" will be used interchangeably in reviewing previous research and reports, since the vast majority of individuals alluded to as overweight in these documents are 20% to 30% overweight.

Based on national survey data for 1976 to 1980, the Department of Health and Human Services report that 26% of Americans are overweight. Twenty-four percent of men and 27% of women are affected. Overweight is more prevalent in low income women and some minority groups - most prominently Black women, Mexican-American women, and Native Americans (U.S. Department of Health & Human Services, 1990).

While high fat diets, inadequate physical activity, and insufficient preventive health services have been identified as important contributors to overweight (U.S. Department of Healthy & Human Services, 1990), weight control has been refractory to treatment. According to the National Institutes of Health, (Bray, 1979), only 5% to 25% of obese individuals treated with dietary, behavioral, and pharmacological methods, maintain weight loss. Daniels (1984) estimates that the long-term cure rate for obesity is less than 8%.

Treatment success rates, however, are frequently based on highly self selected samples of persons who seek formal medical treatment. In evaluating claims about success rates in weight control, it is essential to determine whether the subjects were formally treated. This distinction alone may not be sufficient to compare subgroups in terms of treatment. Persons who control their weight on their own by applying methods they have learned from past treatment, constitute another subgroup to consider.

Limited success with control of overweight may be partly attributable to hereditarily determined tendencies to develop and maintain obesity. For instance, there is mounting evidence that obese individuals have an inherited disturbance in energy expenditure processes, independent of physical activity (Daniels, 1984).

In women, eating and weight control have been influenced by the internalization of socially mandated criteria for valuing women, which emphasize appearance and thinness (Rodin, Silberstein, & Striegel-Moore, 1984). Overeating is potentiated by overly restrictive regimens and repetitive dieting that reduce energy requirements (Rodin et al., 1984). This counterproductive and misplaced over-involvement with eating and weight issues deflects energy and attention from more important pursuits.

To summarize, overeating may contribute to overweight, a prevalent but nearly intractable condition, which increases risks to life threatening diseases and impairment in the quality of life. The relationship between stress and overeating is common knowledge, but its range, severity, health risks, and dynamics in overweight control have not been disentangled and placed in the context of a stress and coping viewpoint.

PURPOSE

The purpose of this study was to test propositions based on the following assertions: 1) Overeating is a coping response to stressors; 2) overeating is also a stressor itself that increases the severity of negative mood states; and 3) as a stessor, overeating requires a specific repertoire of coping efforts to buffer its effect on negative mood states. Perceptions of typical overeating episodes and concerns about them were also explored.

Proceeding from the perspective of nursing science, it is assumed that stress, coping, and overeating in overweight control are health related phenomena, whose qualities can be understood as biopsychosocial features of transactions with the environment (Shaver, 1985).

The fulfillment of human potential is a philosophy of health (Smith, 1981) and pre-eminent value that puts inappropriate overconcern with weight control in perspective. It is also the value that compels us to clear the path for those whose full development is impeded, by attempting to alleviate their stress, shore up their coping, and attenuate the threats to health imposed by overeating and overweight.

CHAPTER 2

REVIEW OF THE LITERATURE, CONCEPTUAL FRAMEWORK, RESEARCH QUESTIONS, AND HYPOTHESES

Review of the Literature

Overeating

Research linking overeating with psychological stress has been limited to studies of individuals with bulimia and those in overweight control treatment. A review of 20 years of naturalistic studies on eating and emotion reveals that: 1) a stress and coping framework has not been adapted; 2) research has proceeded from psycho-analytic, psychosomatic, and cognitive-behavioral perspectives; and 3) the search for typical psychological traits and eating patterns in overweight individuals have been the major hub of this inquiry.

Although it has a different emphasis, this body of work is an essential background to an organized understanding of psychological stress, overeating, and overweight control and provides for identification of gaps in our appreciation of this phenomenon. Knowledge which is integral to a comprehension of overeating from a stress and coping viewpoint, includes the following components: 1) overeating as a health hazard; 2) overeating and obesity; 3) overeating as coping; 4) overeating as a stressor; and 5) coping with overeating.

Overeating as a Health Risk

Health risks associated with overeating for individuals with bulimia and obesity are well documented. Health risks for individuals of diverse weight status, who engage in less severe forms of overeating have not been established.

Severe episodic overeating, or binge eating, is the hallmark of bulimia, however binge eating may be present in individuals who do not meet all the diagnostic criteria of bulimia (Gormally, Black, Daston, & Rardin, 1982; Loro & Orleans, 1981). Diagnostic criteria for bulimia include recognition by the individual that the behavior is abnormal, fear of not being able to stop eating, depressed mood, self-criticism after bingeing, and three of five additional symptoms. These are: 1) ingestion of high caloric, easily accessed food; 2) clandestine eating; 3) cessation of eating because of abdominal pain, sleep, social interruption, or purging by vomiting; 4) repeated attempts to reduce weight by highly restricted diets, self-induced vomiting, cathartics, and/or diuretics; and 5) frequent weight fluctuations, greater than 10 pounds, from bingeing and fasting (American Psychiatric Association, 1980). Weight fluctuations, which reflect intermittent dieting, have recently been found to be associated with an increased risk for morbidity and mortality from heart disease, independent of the effect from obesity (Lissner et al., 1991).

Obesity has well established associations with some forms of diabetes mellitus, hypertension, heart disease, arthritis, gout, menstrual abnormalities, and reproductive difficulties. It is also a major factor in the development of atherosclerosis, gallbladder disease, and sudden death (Rimm & White, 1979). An American Cancer Society study of more than one million men and women found that obese men had

suffered higher mortality from cancer of the colon, rectum, and prostate, regardless of their smoking habits. Obese women sustained higher mortality from cancer of the gallbladder, biliary passages, postmenopausal breast cancer, and cervical, endometrial, and ovarian cancer (National Institutes of Health, 1985).

Risks to psychosocial well-being may be life shattering and far reaching. The value attributed to relative corpulence, which varies historically and culturally, may contribute to depression, body image disturbances, discrimination in school and work, as well as lifelong effects of social stigma (Maddox, Back, & Liederman, 1968; Powers, 1980; Stunkard & Mendelson, 1967).

In summary, threats to physical and psychosocial health from bulimia and obesity have been well delineated by research and they are serious; however, there is a clear exigency to identifying risks associated with a range of overeating patterns in persons of different weights.

Overeating and Overweight

Overeating and overweight may not coexist. In some studies, (Atkinson & Ringuette, 1967; Castelnuovo-Tedesco & Schiebel, 1975; Hudson & Williams, 1981) however, overeating was assumed on the basis that the individual was overweight, or had gained weight. Factors conducive to the development and maintenance of obesity, even in the absence of overeating, include genetic predisposition; medications such as phenothiazines and steroids; and illnesses, such as hypothyroidism (Guggenheim, 1981). Some obese individuals may have dietary intake similar to that of normal weight individuals but may be more sedentary (Kulesa, 1982; Rand & Stunkard, 1978).

The influence of a genetic predisposition to obesity is widely recognized. In a large rigorous study, Stunkard et al. (1986) discovered strong correlations between the weight class (based on the body mass index) of adopted individuals and the weight class of their biologic parents. No discernible relationship was found between the weight class of the adopted individuals and their adopted parents. Two thirds of obese individuals have at least one parent who is obese (Daniels, 1984). If neither parent is overweight, there is a 10% chance that their children will be overweight. If both parents are obese, however, there is an 80% chance (Bray, 1979).

Mounting evidence of genetic influences on obesity points to possible obese/normal differences in responses to feeding, including energy expenditure. Bouchard et al. (1990) investigated the effects of overfeeding of identical twins and analyzed responses within and between pairs. For 84 days in a 100 day period, 6 days a week, 12 pairs of twins were overfed 1000 calories a day. Three times more variance was found among twins than within pairs for resulting changes in body weight, percentage of fat, fat mass, and estimated subcutaneous fat. Six times more variance was found among than within pairs for changes in fat distribution and amount of visceral fat. That there is a genetic governance of factors determining the storage of energy as either fat or lean tissue, and resting expenditure of energy, was inferred.

Obese individuals may inherit other distinguishing energy expenditure mechanisms. One such affected mechanism may be the thermic effect of food (TEM), which fuels metabolic processes and represents energy expenditure above what is needed just to store calories. Hormonal and metabolic factors may account for this usual and expected increase in energy output.

Karzeff and Danforth (1989) compared the TEM of 10 lean men with 6 obese women and 1 obese man. Subjects were all overfed 1000 calories a day for 18 days. The obese group was also underfed 589 calories a day for an additional 18 days. Compared to a baseline measure, TEM was found to be unchanged in lean subjects during overfeeding, but was lower in obese subjects during over and under feeding. Resting metabolic rate was increased only in the lean group during overfeeding. Kartzeff, Harvey and Danforth (1989) concluded that this difference in TEM is only one of a set of obese/normal discrepancies in energy expenditure operations. Considering their results in the context of other research, the investigators propose that insulin responsiveness in the obese plays a role in energy expenditure after a meal.

While some obese individuals may not overeat, but may be genetically programmed to develop and maintain obesity, others of normal weight do overeat yet maintain their weight through strict, intensive dieting. Buchannan (1973) refers to these people as "obese thins"; Bruch (1973) has named them "fat thin people". Both observe that these individuals may have eating-related psychological struggles very similar to those of some obese individuals.

Because overeating does not occur solely in obese individuals and obese individuals may not always overeat, it is clearly essential to support the premise that overeating is manifest in subjects studied with regard to overeating and stress. This may be accomplished through measurement of food intake and activity vis-à-vis the individual's requirements. Very few investigators have attempted to obtain nutritional evidence of overeating.

Rottman and Becker (1970) report that they used a nutritional assessment to substantiate the occurrence of overeating in overweight subjects, however no further details were given. Leon and Chamberlain (1973a; 1973b) and Lowe and Fisher (1982) asked subjects to log their meal and snack food intake, both quantity and food type. These records were evaluated with reference to the sample as a whole, without allusion to individual requirements and activity. This was consonant with their purposes: to distinguish eating patterns of successful dieters, unsuccessful dieters, and persons who have never had a weight problem; and to compare overweight with non-overweight persons. Individual nutritional requirements, however, are extensively health related; and they are a more meaningful basis for adjudicating eating patterns. Relative fulfillment of these requirements should be incorporated in measures gauging group comparisons.

The presence of obese/normal differences in eating patterns, captured in studies employing food records, are not consistently found. This suggests a plurality of patterns in the obese, some of whom may be quite similar to normal weight individuals. It also underscores the importance of ensuring adequate measurement properties of food records. Leon and Chamberlain (1973b) found that one year after weight reduction, persons who had regained a portion of weight lost, those who had maintained their loss, and controls who had never had a weight problem, all recorded balanced meals with average portions. In contrast, Lowe and Fisher (1982) report that overweight persons ate 6% more calories than non-overweight controls, and more frequently ate high calorie snacks in between meals and at bedtime.

Only one other measure of overeating was located. It was much less substantial. Hudson and Williams (1981) analyzed responses to a newly constructed, unstandardized questionnaire and surmised, from two pertinent questions, that overweight was correlated with ingestion of rich starchy foods and continuous nibbling. Confidence in these findings is constrained, not only by threats to reliability, given so few relevant items, but also by the use of multiple t tests which distorts the alpha level, increasing the chance of false significance.

One trend in this work is conspicuous. Interpretations by researchers converge on the proposition that overweight persons more frequently overeat in response to stress than do non-overweight persons. Although there are a number of studies supporting this conclusion (Atkinson & Ringuette, 1967; Buchanan, 1973; Castelnuovo-Tedesco & Schiebel, 1975; Hockley, 1979; Leon & Chamberlain, 1973a; 1973b; Rottman & Becker, 1970), findings are not unequivocal and methodological flaws cast doubt on their validity.

Two studies failed to demonstrate such a relationship. Edelman (1981) studied 100 military personnel, who ranged from 10% under to 30% overweight, and found that their degree of overweight was not related to overeating when distressed. Gormally et al. (1982) inferred that the degree of overweight was not related to overeating when distressed in two samples of individuals seeking behavioral treatment of overweight.

Several of the studies claiming that overweight persons overeat in response to stress more frequently than non-overweight persons had very small numbers of subjects, precluding generalization. For example, Atkinson and Ringuette (1967),

Buchanan (1973), Castelnuovo-Tedesco and Schiebel (1975), Hockley (1979), and Rotmann and Becker (1970) studied 21, 12, 33, 7, and 9 subjects respectively. In addition, obese persons were frequently studied without comparisons to normal weight controls (Atkinson & Ringuette, 1967; Buchanan, 1973; Castelnuovo-Tedesco & Schiebel, 1975; Hockley, 1979; Loro & Orleans, 1981; Rotmann & Becker 1970), augmenting selective effects.

If overweight persons overeat in reaction to stress more than do persons of normal weight, physiological, psychological, and social elements may contribute to this behavior. The subset of overweight persons with this tendency may have: 1) distinct physiological processes and responses to stress, 2) unique psychological make-ups, or 3) particular interactions with the social environment.

Overweight persons may be compelled to overeat because of an aberrant physiological coordination of hunger and satiety (Bray, 1989). It has been suggested that insulin patterns may play a role. This was inferred by Fletcher, McNurland and McHardy (1989) who studied six women with a history of severe obesity. Fasting and post-prandial glucose and insulin concentration patterns were monitored in reference to a controlled breakfast and lunch. Formerly obese subjects had lower fasting, post-prandial, and pre-prandial insulin levels. The relative degree of rise from fasting level was also lower in the previously obese group. In light of other research, the investigators concluded that insulin, acting on the central nervous system in a negative feedback loop, may be part of a system that controls satiety. As a result of these insulin patterns in the formerly obese, the duration and intensity of satiety may be reduced and appetite augmented. Consequently, these individuals are driven to

increase their food consumption. The possibility that insulin anomalies in formerly obese individuals may have preceded and may have influenced the development of their initial obesity was broached by the investigators.

Wing, Blair, Epstein, and McDermott (1990) found that under stressful conditions, obese individuals, unlike normal weight controls, did not demonstrate a delayed response to a glucose load during the first 30 minutes subsequent to the glucose load. Glucose levels were measured at 30, 60, 90, and 120 minutes post-glucose administration. Stress was operationalized as engagement in competitive games for the first 30 minutes of the experiment. Of particular relevance was previous research which found that reduced gastrointestinal transit time is associated with decreased food intake and, during stress, gastrointestinal transit time was decreased for non-overweight but not for overweight individuals. Given these findings, the investigators posited that the delayed glucose response, found exclusively in normal weight subjects, may be mediated by reduced gastrointestinal transit time. The logical implication was that overweight individuals eat more in response to stress because gastrointestinal transit time and the response to a glucose load are not delayed, as they are in non-overweight individuals.

In overweight persons, the regulation of hunger and satiety, fat storage, and energy expenditure processes may vary from those of normal weight individuals. It has been hypothesized that these variations predispose overweight persons to develop and maintain their overweight state.

The long and relentless search for psychological characteristics common to obese persons has not as yet turned up a profile of the "obese personality", and

conflicting and isolated results suggest that the overweight may be a psychologically heterogenous group. Consistently shared distinctive psychological traits may apply to smaller aggregates of these individuals, however, delimitation of meaningful subgroups has yet to be achieved.

From a psychoanalytically-oriented viewpoint, Buchanan (1973) studied nine overweight individuals, and identified commonalities in obese persons including preoccupation with food and alienation from the self with excessive involvement with the mouth. Drug abuse and alcoholism were frequently observed to be concurrent problems. While Buchanan (1973) noted that compulsive oral behaviors were characteristic of the obese, Castelnuovo-Tedesco and Schiebel (1975) opined that obese individuals do not all have oral characters. Other contradictory conclusions are those of Leon and Chamberlain (1973a), who found no differences in body image distortion between overweight, formerly overweight, and normal weight individuals, and Rand and Stunkard (1978), who found that overweight individuals typically suffered from body image disparagement.

The matrix of family dynamics has also been a source for identification and explanations of the psychological traits of overweight individuals. Castelnuovo-Tedesco and Schiebel (1975) and Hockley (1979) inferred that overeating in obesity could be traced to early family relationships. Castelnuovo-Tedesco and Schiebel (1975) posited that overeating was a persistent childhood response pattern linked to deprivation, neglect (often related to parental divorce), and premature adult responsibilities in the care of siblings. Passive aggressive traits and depressive moods were also frequently present.

Another pattern was offered by Hockley (1979), who proposed that obese individuals may identify with either an internalized "indulgent" parent or an internalized "harsh" parent - two conflicting aspects of personality. The "indulgent" parent expansively permits the individual to obtain comfort and gratification by eating, while the "harsh" parent is sternly authoritarian, and may be the origin of extreme self-criticism following such episodes. While these propositions are intriguing, they are not rigorously derived, requiring further study, and they fail to adequately explain overeating which begins in adulthood.

Psychological traits of obese persons are not consistently discerned across studies. It appears that there are many isolated findings. Loro and Orleans (1981) report that obese individuals they studied were underassertive, engaged in irrational thinking, and lacked self-control. Swanson and Dinello (1970) concluded that 40% of their obese subjects had a personality disorder. Hoiberg, Berard, and Watten (1980) studied participant responses to the Comrey Personality Scale and concluded that in men, extraversion was positively related and masculinity was negatively related to higher degrees of overweight and, that in women, empathy was associated with higher degrees of overweight.

Conclusions or assumptions that, as a group, obese persons are more psychologically disturbed than persons of normal weight, and share a specific configuration of psychological traits, are not adequately supported by this body of research. At this point in time, psychological heterogeneity of the obese is suggested.

Social factors, such as socioeconomic status and gender, may give rise to, or impact upon overeating and overweight patterns. Although it has not been

systematically studied, obesity is most prevalent in persons of lower socioeconomic status. It is astonishing that the only comprehensive review of 30 years of studies on overeating and emotion (Ganley, 1989) documents only one study with subjects who are predominantly from lower socioeconomic backgrounds.

The interrelation of persons with the social environment gives meanings to their roles, eating behavior and weight status. Gender may be an important consideration in this process. Overweight women may overeat in response to stress to a greater extent than persons of normal weight because their relationship to the social environment is conflicted. There may be friction between their culturally mandated roles as women and their own ideas of what these should be.

Obesity is a more frequent condition and weight control a more pressing concern in women than in men. This may be explained by the higher percentage of body fat in women. Eating disorders are also precipitated by unrealistic goal weights held by women, and repetitive dieting which lowers baseline calorie requirements, making the attainment of the thin ideal even more elusive (Rodin et al., 1984).

Psychosocial factors however, reflect the extensive influence of the social environment, primarily, 1) the internalization of the cultural depreciation of the intellectual, artistic, and scientific contributions of women in deference to the value tied to their appearance, and 2) the social power associated with thinness (Rodin et al., 1984; Stuart & Jacobson, 1979). The multiple roles in which women are increasingly involved and the rise of feminism may effect the type and level of stress, how it is managed, and the tendency for women to adapt the dominant values of the culture. Given these considerations the subjects in this study are, by design, almost exclusively women.

The cultural context provides a powerful source for proscriptions and prescriptions for women's roles, eating and weight standards, and differential stigma and stereotyping associated with overweight. It contributes to prevalent gender-specific intrapsychic conflicts involving overeating, prompting both conformity and protest.

White (1979) proposes that psychopathologic definitions, the "medicalization" of eating disorders, obscures the seat of the problem, i.e., the social structure. This is not a new problem, she argues. Historically women's discontent with their restriction to traditional, passive, domestic roles has been reflected, perhaps as protest, in the development of symptoms associated with depression and eating disorders. These symptoms were "medicalized" or viewed as diseases rather than products of social stress. Eating disorders may be reactions to the unacceptable values of the culture; to the devaluation and disenfranchisement of women.

Protest may be reflected in extreme eating behavior, however for some women, conformity with the standards of the culture in regards to eating and weight may carry great importance, and may even supersede the cross-cultural recommendations of biomedicine. Allan (1988) found that criteria used by 37 middle-class women to determine their appropriate weight were based on their own norms and not biomedical ones. Appearance, fit of clothing, and physical comfort were some of the criteria used. Forty-seven percent did not accept weight values found in standard desirable weight charts. Curiously, heavier women did not think charts were liberal enough and thinner ones thought they were too liberal. Sixty-eight percent determined their own acceptable range of weight. Outside sources that

contributed to their determination included media as well as peers and co-workers - all features of the daily social environment.

Comparisons between men and women with regards to stress, eating, and mood are scarce. Two studies, each comprised of military personnel and their spouses, found that women were more likely to eat in response to emotion than men (Edelman, 1981; Hoiberg et al., 1980). Edelman (1981) found that men were more likely to eat in response to outside stimuli such as the availability, sight, or smell of food.

Overeating in men is still quite enigmatic, since sampling of this population is impeded by difficulty accessing subjects. There are indications that women are more likely than men to report symptoms, seek medical care, and be hospitalized (Albino & Tedesco, 1983). Women with middle-class and higher incomes are more likely than men to seek regular preventive health services, whereas low income women tend to use medical services on an episodic basis (Bullough, 1972). Women are also more likely than men to join weight control programs (Leon & Chamberlain, 1973b). Much of our information about eating and weight issues is derived from treatment settings in which women predominate as consumers.

Investigators have difficulty recruiting men into research (Edelman, 1981). Yet it is possible that overeating may be quite prevalent in men and may be a more serious problem than has been captured in research. Loro and Orleans (1981) report that of the 50 men in their sample of 208 persons, 54% had problematic binge eating.

Women are more physiologically vulnerable to developing eating and weight disturbances. In the context of our social environment, women are more

psychosocially disabled and, because their self-concept is involved, may be more psychologically invested in these issues (Allan, 1988; Rodin et al., 1984; Stuart & Jacobson, 1979).

Rodin et al. (1984) posit that weight and eating problems are normative concerns for all women. These investigators make the following points: 1) Thinness is the ideal for attractiveness in this society; 2) attractiveness is highly valued, more for females than for males; 3) women internalize societal values for relative attractiveness, as measured by social standards; attractiveness that conforms with these standards contributes to feelings of self-worth in women; 4) the pursuit of beauty is expected of women; 5) beauty is equated with goodness and virtue; 6) beauty as thinness can contribute to social power in women; and 7) weight control may be a source of competition among women.

Concern with eating and weight are normative for women in this culture; of substantial importance for women with every degree of overeating and of every weight category. Overeating patterns can be conceptualized as occupying points on a continuum of eating practices and disturbances, with eating disorders occupying the extreme position (Rodin et al., 1984).

Social factors that have an influence on eating behavior and overweight control include socioeconomic status (SES) and gender. Although overweight is more prevalent in lower SES persons, study of weight control in this group is astoundingly rare. Overeating and overweight control in the U.S. are normative concerns for women because the influence of the culture is pervasive. Women's scientific, artistic, and other contributions are de-emphasized while thinness and the

relentless pursuit of beauty are expected. Role conflict and associated discontent may be problematic for women contending with their depreciation and disenfranchisement.

If overeating is common to segments of both overweight and non-overweight populations, then both groups are vulnerable to the health and illness effects of overeating, and possibly, overweight. The quality of life of these individuals is potentially affected, whether they are overweight or not. It is imperative to explain overeating, for persons of varying weight classes.

In summary, overeating and overweight may not necessarily be related. The proposition that overweight persons overeat in response to stress more frequently than non-overweight persons is frequently advanced, but is controvertible, given contradictory findings and serious methodological insufficiencies. Physiological, psychological, and social factors may, however, differentiate subsets of obese individuals, and distinguish overeaters. Among physiological differences are those involving regulation of appetite, fat storage, and energy expenditure. Psychological dissimilarities may be complex and may vary by the subset of obese individuals which is being considered; they are as yet unclear. Although obesity is highest in individuals of lower socioeconomic status, there is an astonishing dearth of study of this group. The prevalence of obesity and eating disorders in women is also remarkable. Concern with overeating and weight matters is normative for women in our mainstream American culture. This at times relentless, consuming involvement with eating and weight is fostered in a culture such as ours that 1) values thinness and self-control, 2) has emphasized the pursuit of beauty rather than the

achievements and contributions of women, and 3) systematically stigmatizes and discriminates against persons who are overweight.

Overeating as Coping

Although never measured with demonstrated validity and reliability or explored in depth, the coping function of overeating has been reported by obese individuals and observed by researchers. Overeating is noted to follow or is a recognized response to stressors (Hockley, 1979; Rotmann & Becker, 1970); negative moods (Gormally et al., 1982; Hoiberg et al., 1980; Hudson & Williams, 1981; Leon, 1975; Leon & Chamberlain, 1973a, 1973b; Loro & Orleans, 1981); or both (Atkinson & Ringuette, 1967; Swanson & Dinello, 1970).

Individuals overeat to cope, to feel better, or to attain relief from discontent (Hockley, 1979). Overeating has stress-reducing effects, providing comfort, reward, calmness, and relaxation, in addition to relief from negative moods (Edelman, 1981; Hockley, 1979; Loro & Orleans, 1981). These effects are powerful allies in the combat against psychological distress produced by stressors and negative moods.

Terms used to convey the concepts of negative moods and stressors, as well as the phenomena they subsume, have either grouped these under one category or referred to them separately under a variety of labels. At times only concrete examples of these phenomena were enumerated, requiring one to induce the boundaries of the concept or concept. It is evident, however, that the term "stressor," as a situation perceived as threatening and that exceeds the individual's resources, is the term that could aptly supersede those used in this research.

The term "traumatic events," coined by Atkinson and Ringuette (1967,) refers to: loss of immediate family members, occupational problems, loss of other close persons, accidents or illness, and marital problems. Rotmann and Becker (1970) used the rubric "significant biographical events" to describe both normative and unexpected situations such as pregnancy, separation, and disease. Although they did not allude to them as "stressors," Rand and Stunkard (1978) found that normative and unexpected events, such as marriage, divorce, occupational change, and death of a family member were associated with weight gain in some study participants.

The category " Stressor" subsumes pertinent events discussed in the literature, without reference to an organizing term. For example Swanson and Dinello (1970) listed unreasonableness of customers, wives, and bosses as situations which had evoked overeating.

Lowe and Fisher (1983) included both stressors and negative moods as examples of "traumatic events." Atkinson and Ringuette (1967) also referred to both stressors and negative moods as a single phenomenon, naming them "emotional factors," including strife, worry, frustration with a spouse or parent, employment frustration, depression, and boredom.

Although a great number of negative moods were reported to precede overeating, depression, boredom, loneliness, anger, and anxiety were most frequently mentioned. A variety of combinations of moods were reported. Among them were loneliness, boredom, or depression (Castelnuovo-Tedesco & Schiebel, 1975); depression, boredom, anger, anxiety, frustration, or loneliness (Hoiberg et al., 1980); loneliness or depression (Hudson & Williams, 1981); anger, loneliness, boredom

(Leon & Chamberlain, 1973a); loneliness or boredom (Edelman, 1981); and frustration, loneliness, tension, anxiety, boredom, worry, or depression (Lowe & Fisher, 1983).

Several dynamics involving stressors, negative moods, and overeating, are suggested by this literature. There is some indication that more than one negative mood or stressor may be required to evoke overeating (Plutchik, 1976). This may reflect a threshold effect. An individual may have to accumulate stress until a critical magnitude has been reached, activating the overeating response. The failure, obstruction, or deficiency of other coping strategies may contribute. Another possibility is that the individual may generalize the overeating response from one situation to another. Initially it may be a response to a specific stressor, but may have a spreading quality, becoming a more global style of coping used across several stressful situations.

Loro and Orleans (1981) presented a functional chain of events wherein stressors precede negative moods, which in turn trigger the overeating response. Several investigators implicitly agree with this sequence, and have found that, despite observations that a strong link exists, subjects frequently have difficulty pinpointing stressors associated with negative moods they experience, or connecting stressful events, and/or negative moods with weight gain (Atkinson & Ringuette, 1967; Castelnuovo-Tedesco & Schiebel, 1975; Rotmann & Becker, 1970). Rotmann and Becker (1970) offer one explanation by asserting that overeating is an unconscious defense against feelings of helplessness and hopelessness, and as such, causes these relationships to be unavailable to the conscious mind.

In summary, although the connections between stressors and negative moods as preconditions for overeating are not consistently recognized by research participants, coping functions of overeating are widely reported. There are clear indications that overeating may serve to alleviate emotional distress associated with these preconditions. The dynamics of overeating are not completely understood; a threshold or a generalizing effect may be present.

Overeating as Stressor

While for some individuals overeating is a coping mechanism for managing stressors, overeating may have or acquire stressful effects. Although intriguing and crucial to the understanding of this process, the transformation of overeating from coping to stressor has not been researched.

A state of ambivalence may mark the turning point in this transition. Castelnuovo-Tedesco & Schiebel (1975) noted that some individuals reported feeling ambivalent prior to overeating, experiencing a compelling need to cope by overeating, but at the same time, feeling extremely self-critical for habitually responding in this manner. It is unknown what initially and episodically tips the balance in either direction for these individuals; towards or away from the overeating behavior.

It is clear however, that some intensely stressful effects of overeating emanate from the individual's response to overeating, and the degree of tolerance individuals have for this aspect of their own behavior. Stressful effects, which may elicit further overeating, cluster around two components - battered self-regard and negative moods states. Overeaters may believe they are gluttonous failures who lack control; they

may be full of self-contempt (Buchanan, 1973; Castelnuovo-Tedesco & Schiebel, 1975; Edelman, 1981; Hoiberg et al., 1980; Loro and Orleans, 1981). Overeaters may experience remorse, powerlessness, disgust, and shame (Buchanan, 1973; Gormally et al., 1982; Hoiberg et al., 1980; Loro & Orleans, 1981). The onset or worsening of negative moods, such as depression, guilt, or anxiety, is a typical sequela of overeating for many of these individuals.

Other delayed stressful effects, particularly for bingers, include costs incurred, inconveniences, fear of being discovered, and physical discomfort such as abdominal discomfort, headaches, and dizziness (Loro & Orleans, 1981). These stressful responses and consequences, may be compounded by the stress associated with obesity and weight control efforts.

If it is present, obesity carries additional threatening and harmful effects, some of which are culturally transmitted by stereotypes and stigma assigned to body habitus. Overweight persons may be prone to body image disturbances (Buchanan, 1973; Rand & Stunkard, 1978) and may believe that they are extremely ugly. They may be seclusive and self-conscious (Castelnuovo-Tedesco & Schiebel, 1975; Gormally et al., 1982). Isolation and threats to health, job, or marital happiness may result (Swanson & Dinello, 1970).

Overeating and overweight are stressful but, for some persons, so is dieting, since it may promote preoccupation with food and diet regimens, irritability, and depression (Rand & Stunkard, 1978; Wadden, Stunkard, & Smoller, 1986). A precarious balance of family dynamics may be upset by the weight control efforts of a member; attempted sabotage from other members may be problematic. However,

according to Rand and Stunkard (1978) who report these effects, most individuals respond to dieting with a sense of elevated hope, energy, and strength and decreased involvement with food and eating.

To summarize, overeating has stressful effects, but the features and processes which undergird the transition of overeating from coping to stressor have not been explored. It is clear that persons are self-denigrating and experience negative moods subsequent to overeating episodes. Stressful aspects of obesity and weight control efforts may be superimposed.

Coping with Overeating

Approaches to managing overeating have been designed for severe binge eating and obesity. Major treatment modalities, which may be used in combination, are the nutritional/medical approach, emphasizing diet and exercise, and the psychological approaches, primarily psychoanalytic, cognitive-behavioral, or both. Emphasizing insight and personality growth, orthodox psychoanalytic treatment is esoteric, expensive, and may be long-term, limiting access. Some individuals, however, may greatly benefit from some type of psychotherapy, which is tailored to their specific dilemmas, and generally may reduce their perceptions of stress and/or develop and mobilize their coping abilities.

Nutritional/medical and cognitive behavioral modalities are often integrated, and subsume cognitive, behavioral and environmental strategies. Examples of associated strategies which are discussed, are derived in part, from studies of factors associated with prevention and treatment of overweight, including study of obese individuals who achieve long-term weight control (Brownell, 1984; Colvin & Olson, 1983, 1984; Jordan, Canavan & Steer, 1986).

Behavioral strategies, for instance, include increased activity and exercise (Brownell & Stunkard, 1980; Thompson, Jarvie & Cureton, 1982). Cognitive strategies include rationally based redirection of irrational thinking which has been driving and facilitating overeating. A well-known case of irrational thinking is the rationalization that a minor slip-up while dieting justifies subsequent abandonment of all dieting restrictions. Known as the "abstinence violation effect" (Cummings, Gordon, & Marlatt, 1980), such thinking may lead to the expansion of the overeating episode.

Among environmental strategies are the reception and provision of constructive social support, widely recognized by studies of the effects of involving spouses in treatment (Brownell, Heckerman, Westlake, Hayes & Monti, 1978; Fremouw & Zitter, 1980; Pearce, Le Bow, & Orchard, 1981; Rosenthal, Allen, & Winter, 1980; Saccone & Israel, 1978). Other studies which suggest that social support may be a salient component of overweight control are those concerning treatment group characteristics, continuity of group leaders, and follow-up strategies in treatment of obesity (Bellack, Rozensky, & Swartz, 1974; Hall, Bass, & Monroe, 1978; Siderits & Fadden, 1977; Stuart & Guire, 1978; Suczek, 1954; Wagonfeld & Wolowitz, 1968).

Loro and Orleans (1981) advance a program designed to constructively manage antecedents and consequences of binge eating. The bases of their interventions are: 1) The acquisition and use of coping skills, such as problem solving, assertiveness, and interpersonal skills, which may prevent or counteract antecedents; and 2) avoidance of overly restrictive diets and unrealistic goals - other

prominent antecedents - which may also prevent overeating. In this program, consequences and responses to overeating episodes are drained of denigrating self-criticism, and are approached with non-judgmental problem solving. Management of bingeing is also addressed with the enactment, monitoring, and analyses of planned, structured bingeing prescribed by the therapist.

In summary, psychotherapy may directly or indirectly improve the individual's ability to manage stress. Nutritional/medical and cognitive behavioral approaches are widely used conjointly to manage overeating and overweight. Cognitive, behavioral, and environmental strategies comprise a coping repertoire that aims at preventing or counteracting preconditions of overeating, minimizing its consequences, and promoting constructive problem solving.

Methodological Problems

Major methodological limitations that qualify the veracity of findings in this body of work include vague, incommensurable categorization of two aspects of sample characteristics, i.e., severity of obesity and treatment status. Additional pitfalls are: pronounced selective effects on sampling, and attenuated validity and reliability of measurement.

Several studies fail to state the standard used to determine weight status (Buchanan, 1973; Plutchik, 1976; Rotmann & Becker, 1970; Swanson & Dinello, 1970). Others made statements about "percent overweight" or "extremely under to extremely overweight" or "above the calculated norm" without reference to any

standard (Buchanan, 1973; Castelnuovo-Tedesco & Schiebel, 1975; Plutchik, 1976; Swanson & Dinello, 1970). In one study, weights and standards for interpreting them were never reported (Rand & Stunkard, 1978). An exceptional study in this regard, unfortunately an atheoretical one (Hoiberg et al., 1980), used a height-weight index to determine obesity, an indicator which correlates more accurately (r= 0.7 to 0.8) with scientifically sophisticated measures of body fat than body weight alone (Bray, 1979). Research on obesity, including reported rates of overweight control successes, or lack thereof, are affected by the strong possibility that treatment samples tend to be highly self-selective. Although information about treatment status is necessary to evaluate research findings, treatment is often not isolated or controlled as a distinguishing variable, which adds to this obfuscation. Samples are often comprised of various combinations of individuals in treatment, individuals in different phases of treatment, and individuals not in treatment. Samples consisting of subjects both in treatment and not in treatment have, for undocumented reasons, been studied as if treatment status did not differentiate subjects. Illustrations of this practice are numerous.

Atkinson and Ringuette (1967) studied 21 persons; 7 of these were in the pre-treatment phase and 14 comprised a non-treatment subgroup. Seven of the total sample were referred to the weight reduction program for psychiatric reasons and, thus, may have differed from the others in terms of psychological adjustment. Justification for studying these persons as an aggregate is not presented.

Hockley (1979) studied 7 severely obese women. Three of them were hospitalized while recovering from very recent bypass surgery while 4 were post-

operative, returning some time after discharge for medical follow-up exams. Although experiences, concerns, and feelings before and after bypass treatment may vary considerably, the subjects were surveyed as if stage of treatment was not germane. Research in this area includes samples studied before treatment (Gormally et al., 1982), during treatment (Buchanan, 1973; Hoiberg et al., 1980; Hudson & Williams, 1981), and six months to one year after treatment (Leon, 1975; Leon & Chamberlain, 1973a).

Selective effects by gender, treatment, socioeconomic status, and insufficient numbers of subjects have been described. Sampling techniques may promote or intensify these tendencies. Convenience samples, including samples from treatment groups, were universal in this area of inquiry (Hudson & Williams, 1981; Leon & Chamberlain, 1973; Lowe & Fisher, 1983; Plutchik, 1976; Sjoberg & Persson, 1979; Van Strien, Frijters, Roosen, Knuiman-Hijl, & Defares, 1985). Generalization of findings from these studies must therefore be tentative. Future replication studies and triangulation techniques may compensate for this to some degree.

In several studies (Hudson & Williams, 1981; Plutchik, 1976; Van Strien, Frijters, et al., 1985), standardization of instruments was limited or completely absent, compromising measurement and conceptual validity. Standardized measures of stress, coping, or overeating were never employed with the exception of one study (Van Strien, Rookus, Bergers, Frijters, & Defares, 1986), which used an unstandardized life events questionnaire to measure stress.

In summary, pervasive methodological limitations of this body of work include: 1) lack of meaningful and commensurable categorization of weight and treatment

status; 2) selective effects on sampling; and 3) the dearth of valid and reliable measures of overeating, stress, and coping.

Conceptual Framework

The conceptual framework for this study, shown in Figure 1, integrates theory, research, and observations to generate propositions pertaining to coping and stressor functions of overeating. It depicts relationships between stressors, coping, and overeating in relation to negative mood states. In addition to overeating, two sets of coping efforts are represented: 1) Coping efforts evoked by stressors, and 2) overweight control strategies, a specific group of coping efforts intended to buffer the effects of overeating on negative moods states.

Coping evoked by stressors other than overeating includes problem-resolving coping and tension-releasing coping. It is proposed that problem-resolving coping lessens the severity of negative mood states, while tension-releasing coping efforts exacerbate them.

According to Jalowiec et al. (1984), overeating is one type of tension-releasing coping behavior, but it is examined independently in this framework. Overeating is mobilized by stressors and has coping functions initially, but as it escalates it is transformed into a stressor itself, and directly augments negative mood.

Along with several disciplines, nursing shares a long history of the study of stress and its effects on health and illness. The premises of this conceptual framework are embedded in a psychological stress and coping paradigm originated by Lazarus (1980) and are consistent with a nursing perspective. Several

CONCEPTUAL FRAMEWORK:
OVEREATING AS COPING AND STRESSOR IN OVERWEIGHT CONTROL

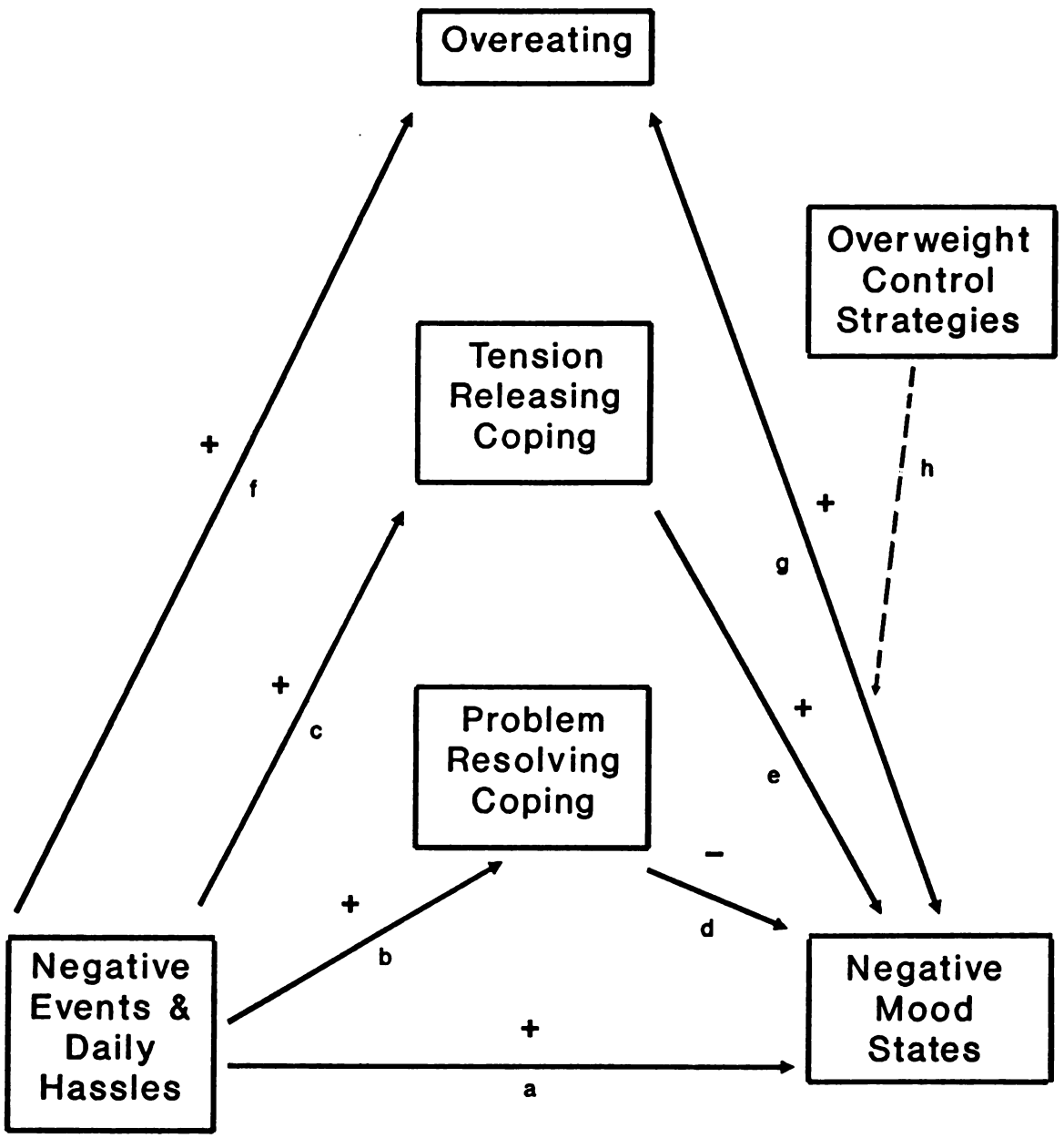


Figure 1

assumptions, which form the foundation for the framework and study methods, are held in common with Lazarus' conceptions.

The study of the patterning of the individual's responses in stressful situations, throughout the lifespan, can be traced to Florence Nightingale (Fagin, 1987). Donaldson and Crowley (1968) identify this extant recurring theme as one which have been central to the nursing discipline since Nightingale.

In this study, psychological stress is defined as:

> . . . a particular relationship between the person and the environment that is appraised by the person as taxing or as exceeding his or her resources and endangering his or her well being.
>
> (Lazarus & Folkman, 1984, p. 19)

"Stressors" are potentially stressful occurrences which may be activated on the basis of the individual's appraisal.

Lazarus' (1980) theory of psychological stress was a departure from the assumptions of the dominant paradigm in psychology at the time, which held that: 1) stress is originated intrapsychically; 2) only normative, group data are meaningful; and 3) the laboratory is the best setting for research because of its provisions for rigorous controls.

In contrast, Lazarus (1980) proposed the following: 1) Stress is the product of a relational interchange between the individual and the environment, which is mediated by cognitive processes; 2) the study of individual differences as well as group differences is salient; 3) the complexity of human nature is not captured by laboratory study alone - naturalistic study is also required; and 4) analyses along biological, sociological, and psychological avenues are essential.

With this stress and coping paradigm as part of the general background, the conceptual framework for this study achieves further coherence. Consideration of the applicable definitions, ranges, links to negative moods, and mediating functions of collateral concepts, provides us with additional insight and perspective. This discussion includes the concepts of negative moods and coping.

Identification of the interface of physiological and psychological contributions to mind-body interface processes, which may influence health and illness, is a fascinating and valuable frontier of stress and coping theory and research. An as yet enigmatic example is the knowledge that, while negative moods reflect an aspect of psychological well-being, they may also act as catalysts in the development of physical illness. It has been proposed that negative emotions generate bodily changes, in particular changes in immune system functions. Vulnerability to disease is heightened and illness may result. Whether the particular disease is decided by factors unrelated to stress, or whether specific emotions generate specific diseases is controversial (Delongis, 1985).

Numerous studies have reported direct associations between everyday stressors and depression, as well as other negative moods (Delongis, 1985). That this effect holds for only a portion of respondents has lead to a tome of studies investigating possible mediating factors such as self-esteem (Delongis, 1985; Pearlin & Schooler, 1978), emotional support (Delongis, 1985), and mastery (Pearlin & Schooler, 1978).

Forms of coping may be paramount mediators in these relationships. Coping may be described as:

> . . . constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person.
>
> (Lazarus & Folkman, 1984).

Lazarus and Folkman (1984) make distinctions between problem-focused coping and emotion-focused coping. Problem-focused coping are cognitive and behavioral efforts to solve the problem. Emotion-focused coping are efforts to manage negative affect. As an application of this categorization, overeating is conceived of as emotion-focused coping.

There has been a good deal of scholarly debate directed to the question: Does coping vary with the person or with the situation? Put another way: do people use a dominant form of coping across situations or is coping specific to a particular situation? One aspect of the conundrum is demonstrated by Panzarine (1985). She rejects the notion of coping as a somewhat permanent trait on the basis of Lazarus' assertions that changing situational variables affect coping. From a research standpoint, however, she also rejects the notion that one enacts specific coping efforts for specific situations, since generalization is not possible. It appears that much can be gleaned from the study of both situation- and person-specific coping. What must be learned is when the study of each or both is applicable.

The realm of coping is mapped out with various conceptual circumscriptions. Among typologies of coping based on theory, research, and statistical analysis, are those of Jalowiec et al. (1984), Menaghan (1983), Pearlin and Schooler (1978), and Wills and Shiffman (1985).

Menaghan (1983) distinguishes coping resources, coping styles, and coping efforts. Resources are attitudes and skills, including attitudes about the self (self-esteem, ego strength), attitudes about the world (belief in mastery), intellectual skills (analytic abilities), and interpersonal skills (communication skills). Styles are coping strategies or problem solving approaches used across situations. Coping efforts are actions taken to reduce stress, such as appraising the problem, asking for help, or refusing to think about it.

Pearlin and Schooler (1978) broadly categorize cognitive and behavioral coping efforts and responses by their function: to initiate direct action, to change the meaning of the situation, or to manage distress.

In their elegant theoretical framework integrating stress and coping concepts with those of substance abuse, Wills and Shiffman (1985) distinguish the individual's need to cope with typical and more unusual daily stressors from the need to cope with the temptation to abuse substances. Their work evolved from a literature review of studies on alcohol and drug abuse, but as the investigators submit, generalization to overeating is tentative because applicable research in this context could not be found. Wills and Shiffman (1985) detail strategies included under the rubrics: cognitive, behavioral, or accepting coping responses. Coping responses may be anticipatory, in expectation of stressors; contemporary, during their occurrence; or restorative, in the aftermath.

Other studies of addictive behaviors provide initial, parallel support for the propositions that: 1) Overeating may operate as a coping effort but may escalate and become a stressor; and 2) overweight control strategies, as a distinct repertoire of

coping strategies targeted to control overeating and overweight, are needed to buffer the effect of overeating on negative moods. Pearlin and Aneshensel's (1986) observations with respect to short- and long-term consequences of alcohol overuse suggest that: 1) alcohol has coping functions as is implied in the findings that young adults use alcohol in negative mood states (Segal, Huber, & Singer, 1980) and that economic strain, anxiety, and alcohol use are associated (Pearlin & Radabaugh, 1976); 2) while moderate and short-term drinking may reduce stress and negative mood (Aneshensel & Huba, 1983; Neff & Husaini, 1982), long-term use is related to more severe depressive affect.

The proposition that different repertoires of coping efforts are needed for coping with everyday annoyances and more major life events than are needed for coping with temptation (Wills & Schiffman, 1985), is adapted in the study framework. While overeating serves to cope with general stressors, overweight control strategies are needed to cope with overeating.

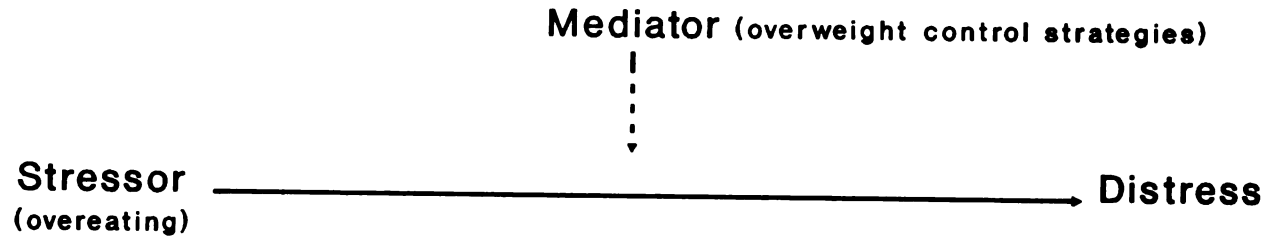
Coping strategies applied to everyday stressors and life events have been adapted from Jalowiec et al. (1984). On the basis of factor analyses of their research data, four types of previously mentioned coping, were identified - problem-resolving, tension-modulating, support-related, and tension-releasing. Albeit these labels and respective item descriptions convey some idea of their meanings, an elaboration of the theoretical underpinnings of these coping types were never developed (Personal communication, A. Jalowiec, 1987). Although theoretically handicapped, this typology was utilized in this investigation since it is the only one which was translated into an applicable measurement tool.

Overeating, or eating in excess of nutritional requirements, is isolated as another coping mechanism directed as a mediator of the effects of everyday annoyances and major life events. While a repertoire of coping strategies is needed to address stressful life events and daily annoyances, a separate coping repertory, for coping with overeating and overweight, is represented as overweight control strategies. These are expected to buffer the pernicious effects that overeating has on negative moods, and are conceptualized in terms of four dimensions: 1) Energy balancing, which includes diet and exercise; 2) environmental support, subsuming the control of food cues in the physical environment and the mobilization of social support; 3) setting limits /reinforcement, which involves identification of realistic goals, such as setting a critical ceiling for body weight fluctuations, as well as efforts to circumscribe set-backs; and 4) anticipatory planning, or strategizing in advance of predicted circumstances which may induce overeating.

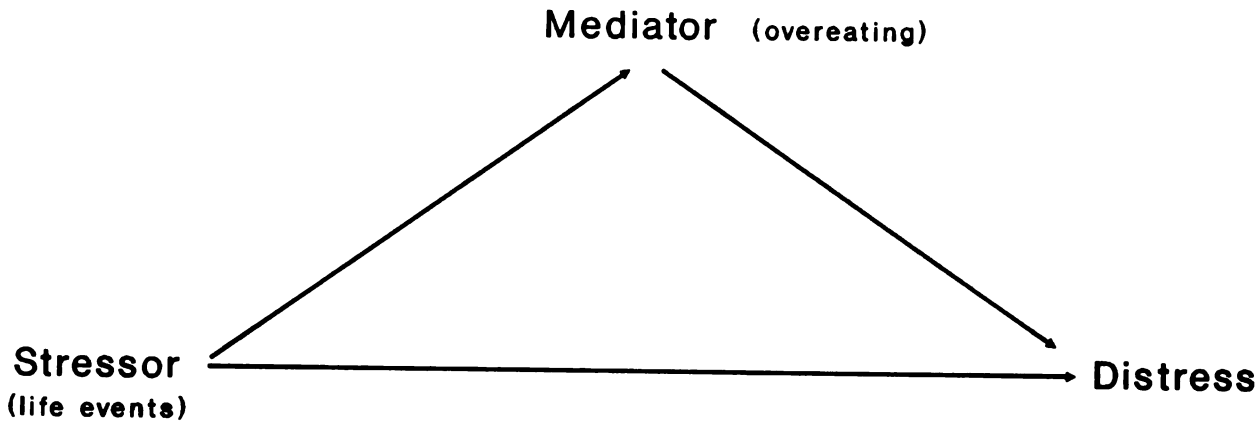
Although they are both mediators in the study conceptual framework, overeating and overweight control strategies have distinct mediating structures. These differences emanate from the work of Wheaton (1985), who sheds some light on the structure and function of buffering relationships of coping mediators which diminish the impact of social stressors. On the basis of an extensive review of the literature and logical argumentation utilizing statistical models, Wheaton (1985) extracted two valid stress-buffering configurations - the interactive model and the additive model. These are depicted in Figure 2.

The interactive model, which is most widely known, proposes that the effect of stressors on the dependent variable will significantly decline in a condition of high

Wheaton's (1985) Models for Mediators of Social Stress



The Interactive Model



The Additive Model

Figure 2

as opposed to low coping efforts. The addictive model illustrates that stressors have indirect or additive as well as direct effects. As stressors increase, so do the coping efforts that they mobilize, and the coping efforts in turn, influence the dependent variable.

Wheaton's (1985) models are the blueprint for the contrasting structures of mediating relationships of overeating and overweight control strategies. In accord with the interactive model, overweight control strategies buffer the relationship between overeating as stressor and negative moods. The additive configuration is the template for the direct relationship between stressors and negative moods in conjunction with the indirect relationship stressors achieve through mobilization of overeating as a coping mediator.

In summary, Lazarus' (1980) stress and coping paradigm is the broad background for this study because it best explains these phenomena and is consonant with the nursing science assumptions and perspective with respect to the primary person environmental interchange. That overeating has both coping and stressor functions is central to the study conceptual framework, which represents an integration of theory, research, and observations. Parallel research with stress and coping approaches to addictive behavior and mediators of social stress contribute to the substance and structure of the framework.

This study shifts the focus and extends previous research by:

1. The adaptation of a stress and coping model to test a coherent set of propositions relating stress, coping, overeating, and overweight control and to determine predictive effects of stress, coping, overeating, and overweight control on negative mood states;

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2. The more extensive use of both quantitative and qualitative methods;
3. The induction of subjects with a full range of weight status (underweight to obese), determined by calculation of Body Mass Index. Measurement of relative obesity by this method is more strongly correlated with rigorous techniques than is the measure of body weight alone (Bray, 1979);
4. The use of a sample size that is deliberately and explicitly congruent with adequate statistical power;
5. The employment of standardized measures of stress, coping, overweight control strategies, and negative mood;
6. The evaluation of subjects' food intake data, with reference to the individual's nutritional requirements based on age, sex, height, weight, and activity level; and
7. The exploration of the perceptions, patterns, and experience of subjects with respect to coping and stressful aspects, preconditions, responses, and consequences of overeating.

Research Questions

The research questions, which are the focus of qualitative analysis, are:

1. What are the preconditions of overeating?
2. What patterns of overeating can be identified?
3. What are the physical, emotional, and cognitive consequences of, and responses to overeating?
4. What are specific coping strategies used to cope with overeating?
5. What are the coping functions of overeating?

HYPOTHESES

Eight hypotheses correspond to the propositions advanced in the operationalized conceptual framework presented in Chapter 3 (Figure 3):

1. Increases in Daily Hassles Cumulated Severity and Negative Events are associated with increases in Total Mood Disturbance. (Arrow a)

2. Increases in Daily Hassles Cumulated Severity and Negative Events are associated with increases in Problem-Resolving Mean Use. (Arrow b)

3. Increases in Daily Hassles Cumulated Severity and Negative Events are associated with increases in Tension-Releasing Coping Mean Use. (Arrow c)

4. Increases in Problem-Resolving Coping Mean Use are associated with decreases in Total Mood Disturbance (TMD), resulting in lower scores in TMD and, thus, the decreased severity of Negative Moods. (Arrow d)

5. Increases in Tension-Releasing Coping Mean Use are associated with increases in Total Mood Disturbance and, thus, the exacerbation of Negative Moods. (Arrow e)

6. Increases in Daily Hassles Cumulated Severity and Negative Events are associated with increases in Percentages Over Average Weekly Calorie Requirement. Initially, this is akin to prompting a coping response. (Arrow f)

7. As Percentage Over Average Weekly Requirement increases, so does Total Mood Disturbance, indicating that at higher levels Overeating acts as a stressor. (Arrow g)

8. Overweight Control Strategies Average Frequency acts as a buffer between Percentage Over Average Weekly Calorie Requirement and Total Mood Disturbance. At higher levels of Overweight Control Strategies Average Frequency, Percentage over Average Weekly Calorie Requirement produces lower scores in Total Mood Disturbance. The severity of Negative Moods is decreased. (Arrow h)

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CHAPTER 3

METHODOLOGY

It is now widely recognized in nursing science that through the application of qualitative and quantitative methods to the same study, research findings may gain strength through triangulation and acquire the potential for prediction and treatment of phenomena, as well as contextual enrichment (Goodwin & Goodwin, 1984). Quantitative approaches may be used to build causal inference and offer greater potential for generalizability, leading to "laws" in nursing science (Gortner, 1983, 1990). Based in probability theory, and with proper controls, statistics are employed to yield generalization of results to particular populations, with a specified range of error. Graduated levels of statistical rigor, in concert with corresponding research designs, contribute to the construction of causal inference - from description to explanation to prediction and possibly, to intervention.

Qualitative approaches unearth sources of new scientific phenomena and imbue research findings with detailed accounts of the lived human experience (Oiler, 1982). These approaches facilitate the discernment of underlying processes, sequences, consequences, and responses (Lofland & Lofland, 1984), which contribute to the interpretation of findings, and suggest explanatory factors.

The integration of qualitative and quantitative approaches to research potentiate both a systematic and holistic understanding of phenomena. This study applied both methods because they were complementary , and at times overlapping,

in addressing the relationships of overeating as a coping effort and a stressor and in addressing the perceived characteristics of overeating episodes and concerns generated by them.

DESIGN

A cross-sectional design was mandated by the state of the art of research in this area. As detailed in the review of literature, descriptive and correlational cross-sectional designs have been used to study emotional correlates, antecedents, and functions of overeating. Longitudinal investigation is needed in future studies to clarify the impact of preexisting conditions, such as a familial history of obesity, characteristic coping style, and mental health status, and to sort out the sequence of influential variables. Because the model is new, advanced cross-sectional study with initial testing of the proposed variable relationships by way of multiple regression will help direct longitudinal work.

SETTINGS

Volunteer adult subjects for this convenience sample, were recruited from groups within three occupational and academic settings. The first was a world-famous health science campus and medical center, which employs 11,000 people. The campus is widely recognized for excellence in teaching, research, and clinical care. Academic and clinical knowledge development and practice are on the cutting edge in a vast range of specialties affecting health and illness. Its four health

professional schools have been ranked as the best or among the best in the United States. Two hospitals and several ambulatory care facilities serve patients, one third of whom come from outside the urban area and abroad. About 1000 nurses are employed, full or part-time, in the two hospitals on this campus.

The second setting was a community non-profit hospital with 150 to 200 beds; newly merged with the medical center of the setting previously described. An array of specialties are practiced, and both inpatient and outpatient services are offered. Inpatient services include Oncology, Medicine, Surgery, Intensive Care, Acute Cardiac Care, Transitional Cardiac Care, Psychiatry, Orthopedics and Pediatric and Adult Rehabilitation. About 350 nurses and 30 unit clerks are employed full and part time in the inpatient area.

The third setting was a highly-regarded private Catholic university in a metropolitan area, which had an enrollment of 6,331 students in the 1990-1991 academic year. Curricula offered includes study from a wide range of academic disciplines. In 1990, 300 nursing students were in the 4-year baccalaureate program and 18 were pursuing master's degrees.

Access to subjects in each of these settings was negotiated with, and supported by, pertinent administrators. Subsequently, access was requested, evaluated and approved by Institutional Review Boards in each setting.

SAMPLING

In view of the study model, initial power analysis indicated that 99 subjects were required to ensure that a false null hypothesis was rejected; to avoid the error

of accepting that there was no relationship between variables. This was based on a power of 0.80, an alpha of 0.05, and a medium effect size (R squared = 0.15), for 9 independent variables in the model (Cohen & Cohen, 1983).

Criteria for inclusion in the study were that the individual must overeat at times and be 18 years of age or older. A flyer inviting participation was placed in the personal mailboxes of all part-time and full-time nurses and unit clerks in setting one. All clerical and support personnel in specific areas of setting 1 - accounting, information management, offices of the schools of pharmacy, dentistry, nursing, and medicine, and research laboratories in the school of medicine - were also sent flyers, which were distributed by their managers. In setting 2, flyers were placed in the personal mailboxes of all full- and part-time nurses and unit clerks. In a few cases, flyers were distributed by managers. All nursing students at site 3 were notified of the request for participants via the flyer which was placed in their personal mailboxes. A total of 2000 flyers was distributed in two waves in all areas combined.

When interested persons contacted the investigator by telephone as directed in the flyer, the investigator clarified study procedures, risks, and benefits. One hundred and forty-nine flyers were returned. Attrition of subjects after flyers were returned to the investigator totaled 49, including 6 subjects who were unreachable, 14 who could no longer be located at their place of employment, 8 who were too "busy" or "stressed," 8 who were not eligible, 2 who were pregnant or nursing, 7 who did not participate for unknown reasons, and 2 who "no longer had the problem." In addition, 1 subject refused to participate because she was not being paid, and 1 declined because the investigator refrained from answering detailed questions about

her own personal eating and weight history. One subject began the study but withdrew due to intolerable emotional turmoil evoked by attempting to record her dietary intake. Three participants stated in the interview that they were not currently overeating and their data were excluded. A total of 100 persons participated in the study.

Sample Characteristics

The majority of the sample were young adult and middle-aged (mean age = 35.24; S.D.= 7.761; range: 19-50). They were predominantly Caucasian (75%); and female (92%). Ten percent of the sample was Asian, 8.86% were Black, and 1.27% were Hispanic. While this sample does not adequately reflect the age, sex and ethnicity of the general community, these demographics are consistent with prior research (Ganley, 1989), allowing for comparison of findings.

Nearly one-half of the sample had never been married. Over 34% were married; 14% were divorced or separated; and 3% were widows. Slightly more than one third of the sample had children, a proportion exceeding the proportion who were married. In view of the fact that over 93% of this sample were employed, and recognizing the significant stress of caring for young children when mothers are employed outside the home (Pearlin, 1975), the finding that one third of those with children had one or two children under five years of age, points to possible sources of stress for these women. In the future, single parenthood should be considered as a possible particular source of stress. Over 37% of those who had children had one or two more than 19 years of age. Given the relative young age of these women, early childbearing may be a pattern for this subgroup.

High school completion was the highest level of education for 6% of the sample. Forty-seven percent had baccalaureate degrees and 11% had completed two baccalaureate degrees. Six percent of the sample had completed graduate level education. Most were employed in clerical (25%), middle management (16%), or nursing (44%), capacities. Over three quarters of the sample were not students.

Although respondents were questioned about family and not individual income, nearly 4% reported earning less than $10,000 a year. In view of the earning power of the occupations in which subjects were employed, this 4% might be assumed to represent unemployed individuals. It should be noted however, that all unemployed individuals were students. Proportions of subjects with extreme values of income were nearly balanced; 18% earned $10-30,000 dollars and 16% earned more than $70,0000 a year. Middle and upper middle incomes were most typical; 37% earned $30 to 50,0000 dollars and 25% earned $50 to 70,000 dollars.

Summary

In summary, individuals in this sample were primarily young adult and middle-aged, caucasian, and female. Fifty-eight percent had completed one or two baccalaureate degrees. Middle to upper middle-class incomes were characteristic for these individuals, and they were employed predominantly in clerical, middle-management, and nursing capacities.

INSTRUMENTS

In addition to a demographic questionnaire and weight control history and interview, five questionnaires and a health diary were vehicles for data collection.

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Table 1 summarizes the concepts and study variables; validity and reliability of standardized instruments are summarized in Appendix A.

Table 1

Substruction of Study Concepts

Concept	Variable	Instrument
Negative Mood	Negative Mood Severity	Profile of Mood States (POMS)
Stressors	Daily Hassles Cumulated Severity	Daily Hassles Scale
	Life Events Negative Life Events Score	Life Events Questionnaire (LEQ)
Coping	Overall Mean Use; Mean use of 4 coping styles	Jalowiec Coping Scale
Coping with Overeating and/or Overweight	Overweight Control Strategies Average Frequency	Overweight Control Strategies Questionnaire
Overeating	Average Percentage over Weekly Calorie Requirement	Health Diary

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The Profile of Moods States

Since it is well standardized and measures the major negative mood status reported in the literature, the Profile of Mood States (McNair, Lorr, & Droppleman, 1971), or, POMS was employed to measure negative mood severity. This instrument is a 65-item tool with a 5-point adjective rating scale which identifies 6 mood or affective states: Tension-Anxiety, Depression-Dejection, Anger-Hostility, Vigor-Activity, Fatigue-Inertia, and Confusion-Bewilderment. While the mood scales have

been successfully applied to assess psychiatric outpatients, they have also been applied to normal subjects and other non-psychiatric populations, but to a lesser extent. The tool assesses mood states over the past week.

The POMS is self-administered. A score for each mood factor is obtained by summing responses for the adjective defining the factor. Only two items receive negative weights, the "relaxed" item in the Tension-Anxiety scale and the "efficient" item in the Confusion scale. A Total Mood Disturbance score (TMD) can be calculated by summing scores on the six mood factors with the Vigor score weighted negatively. This was the score which represented the dependent variable.

The TMD score is assumed to be highly reliable because of intercorrelations among the six POMS factors. Test-retest reliability ranged from 0.65 for Vigor to 0.74 for Depression in two samples, 350 male outpatients and 650 female psychiatric outpatients. Internal consistency for these same two samples was found to be .90 or above.

Reports of both predictive and concurrent validity are available. Predictive validity studies evaluated the effect of specific types of psychotherapy on mood, alone or in comparison with other treatments. These include studies on the effect of drugs on mood and mood-personality interactions. Also included were studies on how mood is influenced by emotion-inducing conditions, such as watching films or visiting the dentist. Concurrent validity of the POMS was established by correlation of the instrument with the Hopkins Symptom Distress Scale. Correlations in psychiatric outpatients were .30 to .86 for nearly all POMS factors.

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Six factor-analytic studies, accepting item loadings of .30 or higher, have corroborated the sux POMS factors. Samples for these studies include: 150 to 523 male psychiatric outpatients, 235 normal male college students, 650 female psychiatric outpatients, and 350 male hospital outpatient clinic patients. While the POMS has dense and credible reliability and validity for psychiatric ambulatory patients, psychiatric institutionalized patients, and students.

Stressor Measures

Two types of stressors, daily hassles and life events, were measured separately. Measures were chosen on the basis that they reflected the individuals appraisal of short-term and long-term events emerging at the person/environmental interface. Each measure is described below.

Daily Hassles Scale

There are several versions of the Daily Hassles Scale which are used to measure stressful daily annoyances. The one used in this study is a modified version developed by Delongis (1985). Her revision 1) altered the time period captured by the scale, from the previous month to the day the questionnaire was administered; 2) attempted to eliminate items which reflected confounding psychological symptoms; and 3) shortened the scale from 117 to 53 items without compromising reliability. This scale can also be used to quantify daily uplifts, but this was considered beyond the scope of this study.

Each hassle is presented with a response scale indicating appraisal of relevance, ranging from "0" (none or not applicable) to "3" (a great deal) (of

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relevancy). Items refer to the areas of family, marriage, work, finances, environment, household, and community and social life.

Although several scores are calculable, the Total Hassles Score was selected since it was described by Delongis (1985) as ". . . perhaps the best indicator of the total amount of everyday stress experienced during a given time period (p. 37)". It is computed by summing all of the ratings of items (from 0 to 4 each).

Under the auspices of the Berkeley Stress and Coping Project, validity and reliability were investigated by Delongis (1985). Subjects were randomly selected and the sample was comprised of 75 married couples, with a wife 35 to 45 years old, and at least one child living at home. The sample was predominantly Protestant and the yearly median family income was $45,000.00.

The test-retest correlation coefficient after one month was 0.82 for the Total Hassles Score. Construct validity was tested by a Principal Factors Analysis with oblique rotation which supported a meaningful 8-factor solution. Factors were: household responsibilities, finances, work, the environment and social issues, home maintenance, health, personal life, and family and friends. Minimal acceptable loading for item retention was .30 and an eigenvalue of 1 was a criterion for retaining factors.

Cursory inspection of items reveals that items are not biased by gender. The validity and reliability of this tool are acceptable for the Berkeley Stress and Coping sample, but further inquiry is required to examine its use for other populations.

Life Events Questionnaire

Life events were measured with the Life Events Questionnaire (LEQ) (Norbeck, 1984). This tool is a modification of the Life Experiences Survey (Sarason, Johnson, & Siegal, 1978). Norbeck (1984) added items to improve the sensitivity of the instrument to undesirable events particular to female subjects. Consequently, the LEQ was especially suitable for the predominantly female sample of this study.

The revised 82-item, self-administered questionnaire, requires the subject to rate the desirability ("good" or "bad" effect) and degree of effect (from 0 or "no effect" to 3 "great effect"), of items organized into areas of health, work, school, residence, love and marriage, family and close friends, parenting, personal and social, financial, crime and legal, and other. The tool applies to events within the last year.

Three scores can be obtained. First, a Negative Event Score is the sum of the impact ratings for all items designated as "bad". Second, a Positive Event Score is the sum of impact ratings for "good items". Finally, the Total Events Score is the sum of negative and positive event scores. The Negative Event Score was the score used in the present study.

Test-retest reliability on 60 graduate nursing students for a one-week interval for each type of score was 0.78 to 0.83 (Norbeck, 1984). To establish criterion validity, the relationship of the LEQ to psychological symptoms was tested for 60 graduate nursing students and 69 female subjects from 5 federally-funded suburban day care centers. The LEQ negative event scores for the graduate students were significantly correlated with the Spielberger State-Trait Anxiety Inventory (STAI) ($r=0.37$, $p<0.01$) and with several POMS factor scores including: Tension-Anxiety

($r=0.33$, $p<0.01$); Depression-Dejection ($r=0.34$, $p<0.01$); Anger-Hostility ($r=0.30$, $p<0.01$); Fatigue-Inertia ($r=0.54$, $p<0.005$); and Total Negative Mood ($r=0.34$, $p<0.01$). With the exception of hostility and phobic anxiety data from day care center mothers, the LEQ Negative Events Score was also moderately correlated ($r=0.27$-0.51, $p<0.05$-0.001) with all 12 scales on the Brief Symptom Inventory (Norbeck, 1984).

The Jalowiec Coping Scale

Coping style was measured with the Jalowiec Coping Scale (Jalowiec et al., 1984). This is a 40-item instrument with a 5-point Likert frequency rating scale, self-administered and designed to measure affect versus problem-oriented coping or the extent of use of 4 dimensions or styles of coping. These are: Problem-Resolving, Tension-Modulating, Tension-Releasing, and Support-Related. Subjects are asked to rate relative use of coping efforts.

Several scores can be calculated. The Raw Use Score is obtained by summing items within 1 of the 4 coping styles. The Mean Use Score for subscales is found by dividing the Raw Use Score by the total number of items possible for that coping style. An Overall Raw Use Score is calculated by adding the Raw Use Score from all 4 coping dimensions. The Overall Mean Use Score is obtained by dividing the Overall Raw Use Score by 40, the total number of items for the instrument. The Tension-Releasing subscale mean use and the Problem-Resolving mean use were applied in this study.

Test-retest reliability with 28 subjects from a general population for a period of 2 weeks was found to be adequate, (0.79, $p<0.001$), for the Total Coping Scores

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(Jalowiec et al., 1984). A Cronbach's Alpha coefficients with 141 hypertensive and emergency room patients was .86, also adequate.

Construct validity was established by a factor analysis for data from hypertensive and emergency room subjects (n = 141). Principal factors extraction with varimax rotation was employed. Whether factors were meaningful to extract or rotate was reportedly determined by conceptual interpretability and Kaiser's Criterion (an eigenvalue of 1 or greater). A 2-factor solution, Problem-Oriented versus Affective-Oriented was found initially. However, coping behavior was thought to be more multidimensional, so several factor analyses were run until the most meaningful conceptually, a 4-factor solution, was found. This solution resulted in the 4 subscales which have been previously described.

The major weaknesses of Jalowiec's scale are the fundamental dearth of theoretical development and support for subscales and the somewhat arbitrary distinctions made between subscales on the basis of minuscule differences in factor loadings. This was used, however, because other appropriate measures could not be found.

Overweight Control Strategies Questionnaire (OCSQ)

This instrument was developed for this study and was designed to quantify use and frequency of use of cognitive, behavioral, and environmental strategies employed by adult individuals to buffer the effects of overeating and to prevent and control overweight. The OCSQ includes 4 subscales - Energy Balancing, Stimulus Control/Environmental Support, Setting Limits/Reinforcement, and Anticipatory Planning.

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The 29-item OCSQ asks the subject to indicate whether or not he or she uses a strategy and the frequency of use. Frequency is measured by a 4-point scale (0 to 4) to identify relative use. The 4-point is anchored as follows. A rating of "0" is used to note that, while the individual used that strategy, the frequency of use had not been filled out by the subject. A rating of "1" or "rarely" means that the strategy was used less than once a month. The rating "2" or "sometimes" means that the strategy was used once a week or less. If the rating is "3" or "regularly," the strategy was reportedly used several times a week. A rating of "4" or "often" indicates that the strategy was used everyday. Average frequency is calculated by dividing the sum of frequency ratings by the total number of strategies used.

Initial content validity was established. The OCSQ items represent the opinion of several experts involved in this work and were generated from literature describing cognitive, behavioral, and environmental factors associated with the control of overweight (Brownell, 1984; Colvin & Olson, 1983, 1984; Jordan, Canavan, & Steer, 1986). There is not a consensus that the use of behavioral techniques is characteristic of those who control overweight, partly because non-compliance of treated individuals obfuscate findings (Jeffrey, 1987).

For the subsequent stage of content validity, 5 judges, the minimum necessary to control chance agreement, were consulted to ascertain item relevance and to identify omissions (Lynn, 1986). The judges included 1 physician, a national expert in eating disorders, 2 master's-prepared nutritionists actively involved in treating obesity, and 2 PhD clinical psychologists, both specialists in treating obesity and/or eating disorders. The Index of Content Validity (CVI) described by Lynn (1986) was

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used to quantify judgement of items. The index consists of a 4 point ordinal rating scale ranging from of score of 1 connoting irrelevance to 4 connoting extreme relevance. The proportion of items rated 3 or 4 is the CVI. Judges were asked to rate items according to the CVI scale and to identify significant omissions. A 3 or 4 rating was given and content validity beyond the 0.05 level of significance was established for all but 1 item. The questionable item, social support, was endorsed by all but 1 expert, however, because of its well established theoretical and empirical importance, the item was retained.

Omissions identified by the judges included stimulus control items , i.e., the resistance of environmental cues to overeat, for example, avoiding overeating while cleaning up after a family meal. There were also suggestions to supplement items with those concerning anticipatory planning. Examples of these items are planning meals or identifying and coping with risky situations in which one might overeat. The instrument was revised to include items corresponding to these recommendations.

When the tool was tested for reliability with 66 nurses and unit clerks, respondents were asked to identify strategies they used but which were not listed on the OCSQ. Some responses were clearly redundant of existing items (eating higher fiber meals, walking instead of driving). The remainder could be categorized as including avoiding specific foods, attitudes towards the self, denying or indulging hunger, appetite and food preferences, controlling the timing of eating, filling-up and munching on low-calorie food, cutting portions, and medicinal appetite suppression. All but one of these strategies was listed only once with the exception of cutting portions which was mentioned twice. An interesting finding was that a few

respondents implied that specific combinations of strategies were helpful, for example, eating specific foods and exercising every day or doing both weight lifting and aerobic exercise.

Test-retest reliability with 39 nursing staff respondents after about 2 weeks was 0.82 ($p < 0.001$) for average frequency, and .88 ($P < 0.001$) for the number of strategies used. Subscale test-retest reliabilities for this group were as follows: Energy Balancing 0.78 ($p < 0.001$); Environmental Support/Stimulus Control 0.70 ($p < 0.001$); Anticipatory Planning 0.48 ($p < 0.002$); and Setting Limits/Reinforcement 0.76 ($p < 0.001$).

Internal Consistency for the 29-item instrument was 0.89. Item-scale correlations ranged from 0.30 to 0.70 with the exception of 4 items: Following a diet of specific foods from a book, magazine, or of one's own design (0.27); limiting fat (0.29); increasing dietary fiber (0.12); and minimizing the negative influences of others (0.16). Deletion of these items, however, failed to raise the alpha any higher than 0.89. Alphas for subscales were: 0.74 for Energy Balancing; 0.68 for Environmental Support/Stimulus Control; 0.70 for Anticipatory Planning; and 0.82 for Setting Limits/Reinforcement. Again, with few exceptions, item-scale correlations were 0.30 to 0.73; however, the omission of 1 item from the Anticipatory Planning cluster - planning meals and snacks - would appreciably raise the alpha for that subscale (from 0.70 to 0.90). The subscale consisted of only 3 items and expansion of the subscale may improve its reliability.

Initial standardization of the OCSQ is acceptable but more extensive data are needed, including tests for criterion and construct validity. Due to the format of the

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instrument, however, a factor analysis to establish the construct validity of this instrument is not feasible. The efficacy of these strategies for controlling eating and weight and mitigating emotional distress from overeating needs to be demonstrated.

Health Diary

Information pertaining to diet, exercise, and factors surrounding eating for 1 week was recorded by each subject in a Health Diary (Roghmann & Haggerty, 1972; Verbrugge, 1980). Each subject was requested to record cues and moods before and after eating, types of food and amount eaten, and exercise, beyond activities of daily living.

Food Processor II, (Esha Research, 1990), a computer software program, was used to compare the subject's data with the 1989 Recommended Daily Allowance and to identify average percentage over weekly calorie requirements, given age and exercise. Calorie requirements were adjusted by the program for each subject by computation of basal and metabolic calorie requirements for age, height, weight, sex, and activity level as recommended by experts (Alpers, Clouse, & Stenson, 1983). In accordance with the program guidelines, recorded exercise, above that associated with occupation and activities of daily living, was used to adjust the assignment of activity level supplied to the program for calculation of dietary requirements. Caloric excess was calculated as average percentage over weekly calorie requirements. On the basis of the program guidelines, 75% of this figure, the conservative measure was used.

Subject reports of certain foods consumed were occasionally not detailed enough to match them with those in the database of the software program. Rules

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were established, and consistently applied in defining these entries. For instance, when a subject listed "a green salad" as a food consumed, a combination of ingredients was entered: 2 ounces of chopped lettuce, half a medium tomato, and 2 tablespoons of ranch dressing.

As a means of collecting data, health diaries have more validity in capturing symptoms and health actions, and client recall is superior to that which is reflected in interviews (Verbrugge, 1980).

The Weight History Interview

The Weight History Interview, designed for this study, yielded information about participants' weight fluctuations, opinions about self-assessed weight status, age of onset of self-defined overweight, and parental overweight. The subjects' history of past and current treatment, and the overeating and overweight control strategies learned in them, was also explored. Strategies actually used, irrespective of their origin, were also elicited.

The interview attempted to capture participant responses to major research questions regarding: 1) Characteristics of typical overeating episodes; 2) cues validating overeating; and 3) critical qualities or junctures determining self-concern about overeating. Responses to these three questions were recorded verbatim and content analyzed, with the use of the Ethnograph (Seidel, Kjolseth, & Seymour, 1988) computer program to code and organize data according to recurring themes and processes.

PROCEDURES FOR DATA COLLECTION

A small pilot study was conducted to assess the convenience, logistics, and clarity of directions in administrating questionnaires and conducting interviews. Data analyses were also run to detect any unforeseen problems and hone analyses plans.

Data were collected over about 30 months. Within this span, data were not collected during periods surrounding Thanksgiving, Christmas, New Years and Easter, as eating patterns were expected to differ considerably during and after these holidays.

Procedures were as follows:

1. Flyers inviting participation were distributed as previously described. Interested respondents returned a stamped form addressed to the investigator, giving their phone number and listing convenient times to call.
2. The investigator called the respondent to explain procedures and set up a meeting at the subject's worksite (worksite meeting #1). Specific questions were invited and addressed.
3. At worksite meeting #1, the investigator explained and obtained consent, distributed and explained the health diary, invited and answered questions, and set-up a telephone interview appointment (meeting duration:about 5 minutes).
4. The investigator called the subject, as arranged, and administered the weight history interview questionnaire and the demographic questionnaire. The duration of the interview was 15 to 45 minutes and averaged about 20 to 30 minutes. Worksite meeting #2 was also scheduled.

5. At worksite meeting #2, the investigator collected the health diary and distributed the remaining questionnaires which were assembled in a packet (worksite meeting #2: duration about 5 minutes). The respondent and investigator decided on the time of a subsequent meeting about 1 week later. In a few cases, participants forgot to bring their diaries, or lost them. They were given more time or new diaries to complete for the next week.

6. At worksite meeting #3 the respondent's completed questionnaire packet was collected (meeting #3 duration: less than 5 minutes). In fewer than 10 cases, because of unusual demands on the subjects' time, participants were interviewed after they had filled out the questionnaires. Every attempt was made to avoid doing this, however, because material in the questionnaires may have influenced responses to interview questions.

7. At the end of the study, each respondent was given feedback comparing health diary data with the 1989 Recommended Daily Allowance nutritional standards. The participant was given a comprehensive brochure describing professional programs and individuals in the community and Bay Area available to provide nutritional counseling services and/or treatment of eating disorders. An experienced, master's-prepared nutritionist reviewed analysis summaries of the participants food records to identify extremely untoward eating patterns, indicating that the individual should follow-up by seeking professional advice. These recommendations were conveyed to subjects.

Protection of Subjects

Subjects were protected through the informed consent process that involved an explanation of the general purpose of the study, confidentiality, and the risks and benefits of participating in this research. The individual participant may have been uncomfortable talking about stress, coping, overeating, or weight control but there were no other foreseeable risks to their health or well-being. Subjects may have benefited from this study by gaining insight into their overeating episodes and coping styles. The respondents received feedback on their food and activity records in comparison with the 1989 Recommended Daily Requirement of nutrients. The subjects also received a comprehensive listing of health professionals who could be contacted for further information and nutritional counseling and /or treatment of eating disorders.

Subject data were coded by identification numbers which are not traceable to the subject's name. Health diary food and exercise data were traced to the subject only to give feedback on the subjects' nutritional profile.

The subjects were informed of their right to withdraw from the study at any time, without repercussions, and had telephone access to the investigator for questions and concerns, by calling or leaving a message for her.

ANALYSES

Missing Data

Although 100 persons participated in the study, only 79 had complete sets of measures with no missing data. To avoid bias from fluctuating numbers of subjects

in different analyses, all description and testing was confined to the 79 complete data sets. It is unclear whether the pattern of missing data was random.

Reliabilities

Internal consistency of study measures was assessed by calculation of Cronbach's Alpha coefficients; results are listed in Table 2. It was not appropriate to compute internal consistency for the Life Events Questionnaire, since the format allows for numerous missing values to be present, invalidating this computation. Measures with an Alpha of 0.7 or more were retained in the study analyses. On this basis, two Jalowiec Coping Subscale scores, the Mean Use of Support-Related and the Mean Use of Tension-Modulating Coping, were omitted, as was the Anticipatory Planning Subscale score of the Overweight Control Strategies Questionnaire, although they were originally planned to be used.

With the exclusion of these Independent Variables, statistical power was recalculated. For 7 independent variables, an alpha of 0.05, and an effect size of an R square of 0.15, power was found to be between 0.75 and 0.80 for 79 subjects. The final operationalized study model, with variables having unreliable measures omitted, is depicted in Figure 3. Hypotheses, stated subsequently with specific analyses, were also revised to reflect the omission of unreliable measures.

Analyses of quantitative and qualitative data were carried out by statistical testing and content analysis respectively. A statistical computer program, CRUNCH4 (1990), was used for descriptive, correlational, and regression analyses which apply to 1) the description of weight history characteristics, 2) the support or non-support

Table 2

Internal Consistency Reliabilities (Cronbach's Alpha)

Profile of Mood States	
Total Mood Disturbance	0.950
Daily Hassles Scale	
Cumulative Severity	0.922
Jalowiec Coping Scale	
Overall Mean Use	0.803
Tension-Modulating Mean Use	0.580
Problem-Resolving Mean Use	0.851
Support-Related Mean Use	0.573
Tension-Releasing Mean Use	0.732
Overweight Control Strategies Questionnaire	
Average Frequency	0.887
Anticipatory Planning	0.644
Setting Limits/ Reinforcement	0.756
Energy Balancing	0.722
Environmental Support/ Stimulus Control	0.740

Operationalized Conceptual Framework:
Overeating as Coping and Stressor in Overweight Control

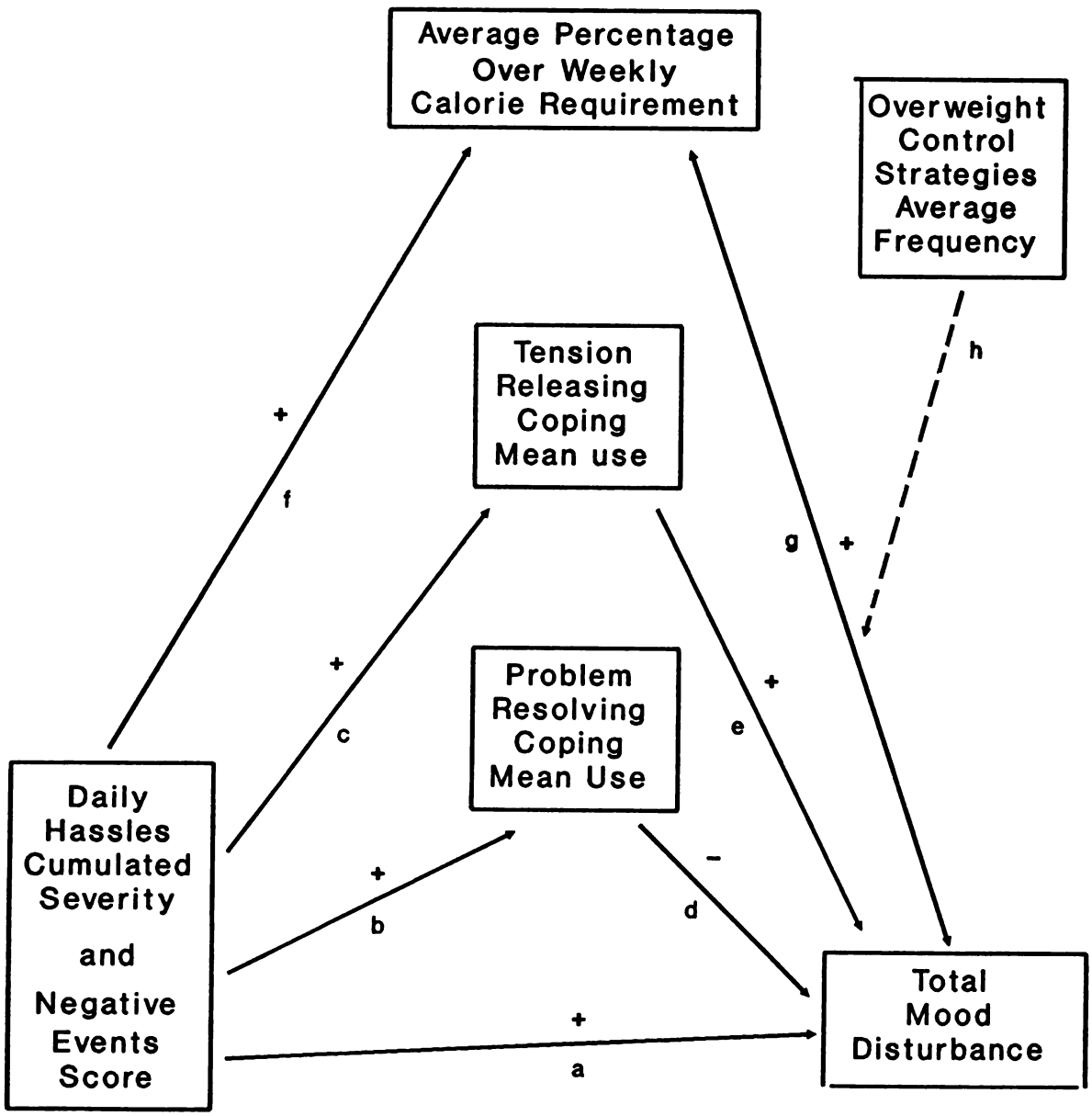

Figure 3

of the study hypothesis, and 3) the support or non-support of the study model. An alpha level of $p < 0.5$ was chosen to determine statistical significance.

Prior to regression analyses, data were assessed for congruence with regression assumptions, utilizing the CRUNCH4 Program. Residuals of all dependent variables generally met the requirement for homoscedasticity, with the exception of Total Mood Disturbance (TMD). Residuals of this variable were configured in a fanning pattern on the scatter plot generated. A linear transformation was applied, i.e., taking the square root of TMD, after adding 20 to all TMD scores to compensate for negative score values, from which a square root could not be derived. With this transformation, residuals of TMD on the scatter plot appeared to be distributed with similar distances from the regression line, indicating similar variance. The transformed version of TMD was used in all analyses involving the variable.

Specific analyses of hypotheses and model were as follows:

1. Increases in Daily Hassles Cumulated Severity and Negative Events are associated with increases in Total Mood Disturbance. Total Mood Disturbance was regressed on Daily Hassles Cumulative Severity and Negative Events. (Arrow a)
2. Increases in Daily Hassles Cumulated Severity and Negative Events are associated with increases in Problem-Resolving Coping Mean Use. Problem-Resolving Coping Mean Use was regressed on Daily Hassles Cumulated Severity and Negative Events. (Arrow b)
3. Increases in Daily Hassles Cumulated Severity and Negative Events are associated with increases in Tension-Releasing Coping Mean Use. Tension-

Releasing Coping Mean Use was regressed on Daily Hassles Cumulated Severity and Negative Events. (Arrow c)

4. Increases in Problem-Resolving Coping Mean Use are associated with decreases in Total Mood Disturbance (TMD), resulting in lower scores in TMD. Total Mood Disturbance was regressed on Problem-Resolving Coping Mean Use. (Arrow d)

5. Increases in Tension-Releasing Coping Mean Use are associated with increases in Total Mood Disturbance. Total Mood Disturbance was regressed on Tension-Releasing Coping Mean Use. (Arrow e)

6. Increases in Daily Hassles Cumulated Severity and Negative Events are associated with increases in Percentages Over Average Weekly Calorie Requirement. Initially, this is akin to prompting a coping response. Percentage Over Average Weekly Calorie Requirement was regressed on Daily Hassles Cumulated Severity and Negative Events. (Arrow f)

7. As Percentage Over Average Weekly Requirement increases, however, so does Total Mood Disturbance, indicating that at higher levels, Overeating acts as a stressor. Total Mood Disturbance was regressed on Percentage Over Average Weekly Calorie Requirement. (Arrow g)

8. Overweight Control Strategies Average Frequency acts as a buffer between Percentage Over Average Weekly Calorie Requirement and Total Mood Disturbance. At higher levels of Overweight Control Strategies Average Frequency, Percentage over Average Weekly Calorie Requirement produces lower scores in Total Mood Disturbance. A hierarchical regression was

carried out with Percentage Over Average Weekly Calorie Requirement entered first, followed by Average Frequency of Overweight Control Strategies. The last measure entered was the interaction term, Percentage Over Average Weekly Calorie Requirement X Average Frequency of Overweight Control Strategies. (Arrow h)

The Study Model

The entire model was tested by hierarchical regression analysis. The dependent variable was Total Mood Disturbance. Independent variables were entered into the model in the following sequence: Step 1, the Negative Events Score and Daily Hassles Cumulative Severity, entered together; Step 2, Problem-Resolving Coping Mean Use; Step 3, Tension-Releasing Coping Mean Use; Step 4, Average Percentage Over Weekly Calorie Requirements; Step 5, Overweight Control Strategies Average Frequency; and Step 6, Average Percentage Over Weekly Calorie Requirements X Overweight Control Strategies Average Frequency.

Transcription, coding, and organization and reorganization of qualitative data were facilitated by the Ethnograph (1988), a computer program designed for qualitative analyses. Through these procedures, consistent themes, processes, and other patterns pertaining to the study research questions, were identified, interpreted, and reconsidered through content analysis.

Summary

Investigation of study hypotheses was accomplished by a cross-sectional survey of 79 adult, consenting volunteers who were predominantly female, caucasian, middle

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class, and young adult or middle-aged. The majority were employed in clerical, nursing, and middle management capacities. Quantitative and qualitative methods were used. Data were gathered by means of standardized questionnaires, interviews, and health diaries and were analyzed by descriptive and inferential statistics and qualitative content analyses.

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CHAPTER 4

RESULTS

Results are presented for Weight History variables, the study hypotheses, and the model. To test the proposition so frequently found in the literature, that heavier individuals overeat in relation to stress more extensively than lighter ones, results of a corresponding hierarchical regression analysis is also presented. Results from the analyses of qualitative research questions follow.

WEIGHT HISTORY

The average weight of this sample was 152.7 pounds, with a large standard deviation (35.39), and a range of 103 to 218 pounds. Although it is usually considered that persons who are at least 20% to 30% overweight are obese (Edelman, 1981), weight alone is not an adequate measure of obesity (Loro & Orleans, 1981), which is the presence of excessive body fat. Body Mass Index (BMI), a weight to height index which correlates strongly ($p=0.7$-0.8) with more rigorous techniques for assessing obesity (Bray, 1979), was used in this study.

Determinations of weight status indicated by particular ranges of BMI may vary. Categories outlined by Altschul (1987) were adapted. By these definitions Body Mass Indices associated with weight status are as follows: 1) A BMI of less than 20 indicates that the individual is underweight; 2) 20 to 25 is consistent with normal weight; 3) 26 to 30 indicates overweight; 4) 31 to 40 denotes obesity; and 5) over 40 is consistent with extreme obesity.

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The body mass index for this sample ranged from 18.954 to 41.775 (S.D.=4.624). The mean BMI was 25.263. About half of the sample was of normal weight (49.37%); while 44.30% was overweight, obese or severely obese. About one third of the sample (30.38%) was overweight; 12.65% was obese, and 1.27% (one person) was severely obese.

Frequent fluctuations of weight were prevalent. Nearly 60% had maintained their weight within 5 pounds for less than 1 year, and about one quarter reported that their weight was stable within 5 pounds for less than 6 months. One quarter maintained their weight for more than 3 years, while 11% had maintained their weight for more than 10 years.

Fluctuations related to pregnancy and lactation, and those related to normal growth and development in younger persons, were excluded from calculations. Illnesses and athletic training may also affect weight stability; however, they were not controlled in this study.

Frequency of overeating, based on the individual's definitions of overeating, ranged from 1 to 365 times per year. Thirteen percent reported overeating less than once a month. Over three quarters of this sample said they overate at least once a week, and about 42% stated that they overate at least 3 times a week. A little more than 8% of subjects reported that they overate every day.

Assessment of Average Percentage of Weekly Calorie Requirements revealed that, on average the respondents were eating the appropriate number of calories per week, consuming 95.961% (range 45.842% to 175.378%) of their caloric requirements. About 20% of the sample ate less than 75% of their average percentage of calorie requirements for 1 week, and about 35% ate more than 100%.

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The overeating variable, Average Percent Over Weekly Calorie Requirements, was not significantly correlated with the Number of Overeating episodes Per Year reported by subjects ($r = 0.1247$, $p. = 0.2735$). The effects of these apparently disparate overeating variables, and BMI, on Weight Fluctuations was compared.

Two hierarchical regression analyses were carried out. The Number of Weight fluctuations was the dependent variable. In the first analysis, the Number of Overeating episodes Per Year was entered at Step 1; BMI was entered at Step 2; and the interaction, Number of Overeating episodes Per Year X BMI was entered at Step 3. Results indicated that a climbing Number of Overeating episodes reported by subjects was associated with increases in the number of reported Weight Fluctuations ($p = 0.0091$). Neither BMI or the interaction term discernibly influenced the frequency of Weight Fluctuations. In the second analysis, Average Percent Over Weekly Calorie Requirements was entered first, followed by BMI and, finally, the interaction Average Percentage Over Weekly Calorie Requirements X BMI was entered. There were no significant results from this second analysis.

Thus, the two overeating measures were not correlated, and they also demonstrated different effects on weight fluctuations, as would be expected. The results suggest that overeating in the long term may be related to weight fluctuations irrespective of weight status.

When nutritional values of the foods consumed by subjects were calculated, the findings indicated that 32% had more than 10 nutritional deficiencies and 80% had at least 4. Deficiencies were serious and widespread. Often nutrients that cannot be stored and that require daily replenishment from the daily diet were not

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adequate according to computerized analyses of subject food intake records. Nearly 19% of the subjects had diets lacking in sufficient protein. Nearly one quarter did not consume required amounts of potassium.

A dearth of water-soluble vitamins in food intake across subjects was apparent. This ranged from 18% of subjects with deficits of vitamin B1 (thiamine) to 47% lacking vitamin B6. Over 92% of the sample did not ingest enough pantothenic acid; %27 did not consume required amounts of vitamin C.

Typically some minerals were not taken in sufficient quantities. In particular, the intake of calcium was inadequate in 66% of the sample, and iron was deficient in 57%. A deficiency of copper was ubiquitous--95% failed to meet the requisite level. Nor was fiber taken in adequate amounts. The diets of 66% of the sample were deficient.

The number of nutritional deficiencies were negatively correlated with Average Percentage of Weekly Calorie Requirements ($r=-.6032$, $p<0.0001$), suggesting that persons who were eating less calories were at greater risk for insufficient nutrition.

The mean calories of the sample was 1553. Considered as a level that should maintain the sample mean weight, 152.7 pounds, this caloric intake is extremely minimal, even for some very sedentary individuals. This finding should also be assessed in relation to the typically light or moderate activity level of this sample. Sixty-two percent of the sample was classified as lightly active. This category is based on a group of occupations, daily activity, and exercise that includes 16 hours a day of sitting or standing of which 3 are spent in light activity, such as walking, laundry,

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golf, or ping pong. One hour of this represents moderate activity such as tennis, dancing, walking briskly, or aerobics (ESHA, 1990). Thirty-seven percent of the sample was considered moderately active. Persons categorized as such have more active occupations, like light industry, electrical, carpentry and building trades, farm work, childcare, garage work, or are active students, department store workers, or homemakers without mechanical appliances. With a more sedentary occupation, such as office work, the individual has to average 1.5 to 2.0 hours of exercise a day to be considered moderately active (ESHA, 1990).

In light of the mean weight and typical activity level of this sample, the extremely conservative value of mean calories may reflect 1) inaccurate reporting of food intake or activity, 2) the tendency for subjects to have rather low metabolic rates or problems with other energy expenditure mechanisms, or 3) the influence of other factors which were not identified.

Fifty-six percent of subjects reported that they were trying to lose weight, and 31% indicated that they were trying to maintain their weight. Thirteen percent of the sample reported that they were not trying to do anything in particular about their weight.

Adult onset of overweight and a history of overweight parents were frequently reported. Nearly three quarters (72%) reported that at least one of their parents had been overweight. Twenty-two percent reported that both of their parents were overweight. Of those who considered themselves overweight, 42% stated that their overweight control problems began after age 18. The possible influence of poor recall on reports of age of onset of overweight was given some thought. This was

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deemed unlikely because the trauma of social stigma associated with onset of overweight would tend to be remembered (Maddox, Back, & Liederman, 1968; Straffieri, 1967). Culturally-influenced evaluative perceptions of overweight begin at age 6 (Straffieri, 1967). It might be expected that children older than that age may transmit learned prejudice toward overweight persons. It should be noted that strict criteria for defining overweight in these categories were not provided, and responses as to parental overweight and age of onset were based solely on the individuals' perceptions of what constitutes overweight.

Only 54% of the sample had a history of formal treatment for overweight control. Respondents reported that they had engaged in several different formal weight control programs (see Appendix H). Weight Watchers was most frequently mentioned, followed by medical treatment, Overeaters Anonymous, Diet Center, and Nutrisystem. Jenny Craig, The Diet Workshop, and self-help groups were also mentioned. Because only 12 members of this sample (15%) were in treatment for overweight at the time of this study, treatment status could not be statistically controlled in correlation or regression analyses.

Summary

Weight history data indicate that about one half of study participants were of normal weight and about 40% were overweight, obese, or severely obese. Weight fluctuations were common. Almost 60% had maintained their weight within 5 pounds for less than 1 year. According to reports based on their own perceptions, nearly 75% of these individuals had at least 1 overweight parent and about 40% said that their problems with overweight began in adulthood. Analyses of food record

data indicated that about 20% of this sample ate less than 75% of average weekly caloric requirements and about 35% ate more than 100% of these requirements. Nutritional deficiencies were widespread; nearly 80% of the sample had at least 4. Nutritional deficiencies were inversely related to Percentage of Average Weekly Calorie Requirements. Respondents who wanted to lose weight used a variety of strategies. Among formal treatments, Weight Watchers, cited by 43%, was most frequently mentioned.

THE STUDY HYPOTHESES

Results for regression analyses of hypotheses 1 to 8 are presented in Table 3.

Hypothesis 1

Increases in Daily Hassles Cumulated Severity and Negative Events are associated with Increases in Total Mood Disturbance. (Arrow a)

There was evidence to support this hypothesis. Total Mood Disturbance was regressed on Negative Events and Daily Hassles Cumulative Severity with both Stressor scores in the equation. Twenty percent ($p = 0.0002$) of the variance in Total Mood Disturbance in the population was explained by Daily Hassles Cumulated Severity and Negative Events scores.

Hypotheses 2 and 3

Increases in Negative Events and Daily Hassles Cumulative Severity are associated with increases in Problem-Resolving and Tension-Releasing Coping Mean Use. (Arrows b and c)

Tests of these hypotheses did not sustain their validity. When each coping subscale was regressed on each stressor measure, proposed relationships were not statistically significant.

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Table 3

Regression Analyses Hypotheses 1 - 8

	Source	r	Cumulative R^2	R^2 change	Sr^2	df	F	P
Hypothesis 1 Dependent Variable: Total Mood Disturbance	Stressors	--------	0.2041	--------	--------	2,76	9.744	0.0002
	• negative events	0.3912	--------	--------	0.0663	--------	6.326	0.0140
	• daily hassles cumulative severity	0.3113	--------	--------	0.0511	--------	4.876	0.0302
Hypothesis 2 Dependent Variable: Problem Resolving Coping Mean Use	Stressors	--------	0.0267	--------	--------	2,76	1.044	0.3571
	• negative events	-.1570	--------	--------	0.0150	--------	--------	--------
	• daily hassles cumulative severity	-.1083	--------	--------	0.0021	--------	--------	--------
Hypothesis 3 Dependant Variable: Tension Releasing Coping Mean Use	Stressors	--------	0.0483	--------	--------	2,76	1.930	0.1522
	• negative events	0.1591	--------	--------	0.0230	--------	--------	--------
	• daily hassles	0.2051	--------	--------	0.0230	--------	--------	--------
Hypothesis 4 Dependant Variable: Total Mood Disturbance	• problem resolving coping mean use	-.3168	0.1004	--------	--------	1,77	8.591	0.0044
Hypothesis 5 Dependent Variable: Total Mood Disturbance	• tension releasing coping mean use	0.5103	0.2604	--------	--------	1,77	27.108	<0.00001

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	Source	r	Cumulative R^2	R^2 change	Sr^2	df	F	P
Hypothesis 6 Dependent Variable: Average Percent of Weekly Caloric Requirements	Stressors	--------	0.0535	--------	--------	2,76	0.1238	0.1238
	• negative events	0.2308	--------	--------	0.0464	--------	--------	--------
	• daily hassles cumulative severity	0.0844	--------	--------	0.0002	--------	--------	--------
Hypothesis 7 Dependent Variable: Total Mood Disturbance	• average percent over weekly caloric requirements	0.1576	0.0248	--------	--------	1,77	1.962	0.1653
Hypothesis 8 Dependent Variable: Total Mood Disturbance								
Step 1	• average percent over weekly caloric requirements	0.1653	0.0248	--------	--------	1,77	1.962	0.1653
Step 2	• average frequency of overweight control strategies	-.0599	0.0257	0.0008	--------	2,76	0.3723	0.8012
Step 3	• average frequency of overweight control strategies X average frequency of overweight control strategies	--------	0.0818	0.0562	--------	3,75	2.228	0.0354

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Hypothesis 4

Increases in Problem-Resolving Coping Mean Use are associated with decreases in Total Mood Disturbance (TMD), resulting in lower scores in TMD. The severity of Negative Moods is decreased. (Arrow d)

This hypothesis was supported. Total Mood Disturbance (TMD) was regressed on Problem-Resolving Coping ($r=-.32$) and 10% of the variance of TMD was explained by Problem-Resolving Coping Mean Use ($p=0.0044$).

Hypothesis 5

Increases in Tension-Releasing Coping Mean Use are associated with increases in Total Mood Disturbance. Negative Moods are exacerbated. (Arrow e)

Validation of this relationship was evident. Regression of Total Mood Disturbance on Tension-Releasing Coping Mean Use explained 26% of the variance of Total Mood Disturbance ($p<0.001$).

Hypothesis 6

Increases in Daily Hassles Cumulated Severity and Negative Events are associated with increases in Percentages Over Average Weekly Calorie Requirement. (Arrow f)

Tests of this hypothesis indicated that, as a set, Negative Events Scores and Daily Hassles Cumulative Severity did not explain Average Percentage Over Weekly Calorie Requirements. When Average Percentage Over Weekly Calorie Requirements were regressed on Negative Events scores alone, however, 5.33% of the variance in Average Percentage Over Weekly Calorie Requirements was

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explained (p=0.0408). When similarly analyzed, the contribution of Daily Hassles Cumulative Severity remained non-significant. However, this should be expected because of the timeframes represented by the variables. The Daily Hassles score represented stressors experienced on the day it was completed, while the measure of calories represented food consumed the week prior to the completion of the Daily Hassles Questionnaire. It is likely that Daily Hassles Cumulative Severity would not affect previous caloric intake.

Hypothesis 7

As Percentage Over Average Weekly Requirement increases, however, so does Total Mood Disturbance. Negative Moods are exacerbated. (Arrow g)

On the basis of regression of Total Mood Disturbance on Average Percentage Over Weekly Calorie Requirements, this hypothesis was not supported (p=0.164). In addition, although it has been suggested that this relationship may be reciprocal, these variables were not correlated (r=0.158, p=0.165).

Hypothesis 8

At higher levels of Overweight Control Strategies Average Frequency, Average Percentage Over Weekly Calorie Requirements produces lower scores in Total Mood Disturbance. Negative Moods become less severe. (Arrow h)

When tested by hierarchical regression, this interaction explained more than 5% of the variance in Total Mood Disturbance (p=0.035). Contrary to this hypothesis, however, the direction of the relationship was positive. This suggests that at higher levels of Overweight Control Strategies Average Frequency, escalating Average Percentage Over Weekly Calorie Requirements results in higher Total

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Mood Disturbance Scores. According to these findings, Rising Use of Overweight Control Strategies do not blunt the impact of Overeating on Negative Moods; they augment the impact, worsening negative moods.

THE STUDY MODEL

The proposed model was tested by hierarchical regression analysis with Total Mood Disturbance as the dependent variable. Results of this analysis are displayed in Table 4. The independent variables, entered into the model in the following sequence, explained the respective variance in TMD. At Step 1, the Negative Events Score and Daily Hassles Cumulative Severity, entered together, explained 20.41% ($p < 0.001$). At Step 2, Problem-Resolving Coping Mean Use explained 6.17% ($p = 0.014$); an inverse direction of influence was indicated by the negative correlation of Problem-Resolving Coping Mean Use with TMD. At Step 3, Tension-Releasing Coping Mean Use explained 14.16% ($p < 0.001$) of the variance in TMD. At Step 4, the influence of Average Percentage Over Weekly Calorie Requirements was not significant ($p = 0.770$). At Step 5, the effect of Overweight Control Strategies Average Frequency was also not significant ($p = 0.863$). At Step 6, the interaction term, Average Percentage Over Weekly Calorie Requirements X Overweight Control Strategies Average Frequency, explained 4.95% ($p = 0.013$) of the variance in TMD. The positive direction of the relationship of this interaction was contrary to the direction hypothesized. The model explained 45.69% of the variance in Negative Mood States.

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Table 4

The Study Model: Hierarchical Regression

Dependent Variable: Total Mood Disturbance

Step	Source	r	Cumulative R^2	R^2 change	Sr^2	df	F	P
1.	Stressors	--------	0.2041	--------	--------	2,78	9.744	<0.0002
	Negative Events	0.3912	--------	--------	0.0663	1,76	6.326	0.0140
	Daily Hassles Cumulative Severity	0.3713	--------	--------	0.0511	1,76	4.876	0.0302
2.	Problem Resolving Coping	-.3168	0.2658	0.0617	--------	1,75	6.305	0.0142
3.	Tension Releasing Coping	0.5103	0.4074	0.1416	--------	1,74	17.676	0.0001
4.	Average Percent of Weekly Caloric Requirements	0.1576	0.4081	0.0007	--------	1,73	0.089	0.7669
5.	Average Frequency of Overweight Control Strategies	-.0599	0.4083	0.0002	--------	1,72	0.030	0.8633
6.	Average Percent of Weekly Caloric Requirements X Average Frequency of Overweight Control Strategies	--------	0.4578	0.0495	--------	1,71	6.484	0.0131

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Conceptually, with regard to the study model, the regression analyses suggest that as the extent of stressors increase, so does the severity of negative moods. Problem-Resolving Coping approaches alleviate negative moods, while Tension-Releasing Coping exacerbate them. Frequent use of strategies to control overeating and overweight, in the context of rising degrees of overeating, results in augmented severity of negative moods.

To test the proposition frequently found in the literature, that the relationship between stress and overeating depends on higher body weight, a hierarchical regression analysis was computed with Average Percentage of Weekly Calorie Requirements as the dependent variable. Negative Events and BMI were entered as a set at Step 1. The interaction term, Negative Events X BMI, which represented the relationship advanced in the proposition, was not statistically discernible (sr2=0.0018, p.=0.162). Moreover, higher weight as indexed by the BMI was not associated with increasing levels of Overeating; it was, however, significantly related to decreasing levels of Overeating (sr2=0.1278, p=0.0009). This was indicated by the negative direction of the beta term for the relationship at Step 1 (-b=0.367).

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QUALITATIVE ANALYSES

In these analyses, the preconditions, functions, and patterns of overeating are addressed. Discussion of consequences, responses and coping behaviors follow.

Preconditions, Functions and Patterns

Among preconditions for overeating, respondents frequently identified stressors, negative moods, external cues (such as sight, smell, and availability of

food), and socioculturally defined commemorations and celebrations, like birthdays or Christmas. The most prominent stressors included overload and time pressure at work or in multiple roles. Discord and lack of sufficient support in relationships, catastrophic family or chronic personal illness, and novel situations were also frequently named as stressors. Students pointed to strains related to academic performance and achievement. Because workers perceived that they had too much to do in too little time, they gave up breaks for meals or refreshment. This resulted in long periods between meals, potentiating bingeing episodes as well as indiscriminate snacking while at the desk or after work, often on foods high in fat and sugar.

> I come home after work and have eaten sparsely [during the day] in order to cut down, or because I'm busy. I will have bread and butter and anything I can get my hands on before dinner.

Discord and insufficient support in relationships, in the context of this time crunch, were particularly stressful for those with multiple roles. The respondents were insightful.

> I am concerned because I am 144 pounds and will gain 10 pounds. I am going home and I want to look good. I am a full-time student and I have a 15 month old baby, and I work in an Intensive Care Unit. There is no support from my husband, and no time to talk to friends.

> I have 7 classes a day. There is no nurturing stuff. Food is my friend. My mother lives in a mayonnaise jar in my refrigerator [laughs]. It is stress related . . . I have to type a 4-page report on a medication, but I have time to eat. I make a pan of pasta and eat it all; then I can do my work . . . . Also in the back of my head, is that I only worked 2 days last week. I'm worried about getting my rent in on time.

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For students, the pressure for achievement was marked, involving activities central to college life such as studying, sitting for exams, and worrying about grades. Terminal illness of parents and chronic back pain were severe and persistent stressors for a small number of individuals.

It was frequently reported that negative moods evoked overeating, and it was typical for individuals to name them as the trigger without identifying their antecedents. Consistent with the literature, boredom, anxiety, and depression were most frequently named. Self-pity, self- denigration, and guilt were also commonly reported.

Negative moods evoked overeating in some individuals who deliberately ignored the consequences, although they were aware of them prior to eating, seeking perhaps, a fleeting effect, regardless of the aftermath. As will be discussed subsequently, the aftermath often includes the experience of negative moods. A cyclical pattern is established.

> I was eating because I was depressed, then I was depressed because I was eating.

It has been found that women with multiple roles may be stressed by concerns carried over from one role to another (Meleis, Norbeck, Laffrey, Solomon, & Miller, 1989). This was problematic for some women in this sample, who brought home negative moods related to their work.

> Eating a lot at night [is overeating for me]. Coming home from work and being nervous and all the kids want me to look at their homework. I will be sitting watching TV and eat ice-cream. Then I'm nervous at dinner and eat too much. I don't binge. I eat second helpings or eat non-stop while fixing and eating dinner.

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That individuals eat in response to external cues such as the sight, smell, and availability of food, has been acknowledged and studied for quite some time (Schacter, 1982). It was also observed in this sample. Some individuals were unable to resist a particular food in their environment, while others were not selective about what they ate, and responded to the availability, sight, and smell of a wide variety of foods.

Prescriptions and proscriptions for eating patterns are transmitted from the culture by way of socialization. Specific occasions are associated with specific types of food, and overeating may be tolerated or normative at these times, although it is not at others.

> It [eating] is an important part of celebrating an occasion. [I ate so much that] I had to lay in the back room and rest.

These preconditions may be interwoven with each other; at times with great complexity. For instance, the combination of family squabbling, disappointment, depression, and the abundance of food at Christmas time, which may result in overeating, exemplifies the combination of all preconditions - stressors, negative moods, availability of food, and sociocultural tolerance.

These data suggest that coping functions of overeating may be described in terms of two dimensions: 1) relief or postponement of displeasure, and 2) boost to a sagging affect. The first dimension subsumes functions such as escape, procrastination, and relief of frustration. The second refers to the sense of reward, comfort and nurturance produced by overeating.

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As the quantitative data have demonstrated, although overeating functions as a coping mechanism, it does not always relieve negative moods, and may become a stressor itself.

> I will eat until I am too full. Then I will fall asleep and when I get up, I feel better . . . . More often then not, I don't feel better.

Several patterns of overeating were reported. These included problems with control of initiation and termination of eating, distribution of food, the quantity and quality of food, and food preferences.

An intriguing and recurrent problem was that initiation and termination of eating was often difficult for these individuals to control. Findings that obese individuals may have disturbed hunger and satiety mechanisms, which was previously discussed in the literature review, raise the question of possible physiological influences. It is impossible to ascertain the contributions of physiological factors in this study, however, the complexity of these patterns is apparent.

Decreased awareness of initiation of eating, lack of satisfaction, eating beyond discomfort, and fear of not being able to stop eating were illustrative of problems with initiation and termination of eating. A kind of mindlessness and detachment or disembodiment was experienced by some individuals, clouding awareness of initiation of eating episodes.

> I keep putting my hand to my mouth, and then I think: "Wow! I ate all that?
>
> . . . I am zoned out and don't pay attention and am eating certain foods, like rich desserts or fried foods.
>
> [I consider that I have overeaten if] I caught myself eating a bag of something or other thoughtlessly eaten thing - usually socially, usually chips.

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Lack of satisfaction may perpetuate overeating. Some individuals were not satisfied, even after overeating. Subjects also shared their astonishment at their continued eating jags, which extended beyond fullness and/or satiety, even in the face of discomfort. Their behavior defied the bounds of their own sensibilities, leading to self-condemnation, astonishment, and feelings of helplessness.

> I get disgusted with myself. My stomach hurts and I continue to eat. I feel out of control. Food is controlling me. My relationship with food worries me.

The fear that one may not be able to stop eating was also reported, exemplifying another case of difficulty with termination of eating. In light of this symptom, along with the apparent absence of some of the essential diagnostic criteria for bulimia, the question is raised as to whether this represents another describable phenomenon on the continuum of overeating. This may be a variant of bulimia, with fewer signs and symptoms arising more selectively. The presence of a latent form of bulimia is also a possibility.

> Four or five times in my life, I've been very concerned. I would eat huge amounts of food and was afraid I'd be unable to stop.

Four meal and snack overeating patterns pertaining to meal distribution and balancing of meal heaviness emerged from these interviews. They include: 1) Skipping meals and overeating at remaining meals or snacks; 2) consolidating meals and overeating at one main meal; 3) absence of distinct meals, replaced by a stream of snacking throughout the day; and 4) imbalances of meal heaviness in relation to other meals.

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Patterns were also determined by quantity and quality of food. Excessive portions, servings, or bingeing behavior were overeating patterns involving quantity. Quality was also a defining parameter of overeating. Degrees of quantity alone cannot determine overeating. Subjects frequently referred to overeating as the ingestion of food which is nutritionally worthless. Overeating by displacement occurs when food of poor quality is taken in moderate amounts, but supplants food which would fulfill nutritional requirements.

Food preferences reflect the intricate meanings, personal history, and pleasurable feelings associated with food. Craving is an extreme, compelling preference, pressing for satisfaction. The push and pull of this struggle is one aspect of overeating with which some individuals contend. Several solutions were demonstrated. Some individuals succumbed or indulged, eventually overeating the foods they craved. Another resolution was that an alternative, more nutritious food was satisfactorily substituted for the craved one. Or, the craved food was eaten, but in limited quantities.

Some attempts at restraint and substitution may be counterproductive, eventually leading to expansive overeating of everything but the craved food.

> There are times when I want something and if I don't get it, I eat everything in sight. Like chocolate chip cookies. . . . Nothing satisfies me except chocolate chip cookies. I don't hide food or scarf a lot at one time. I want a specific thing . . . like I eat 3 pieces of bread and butter instead of 1 chocolate chip cookie.

Subjects identified psychological and physical consequences of overeating as the experience of specific signs and symptoms. These can be traced to physiological mechanisms set in motion by overeating, and include, for example, awareness of the

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onset of abdominal distention and water retention. Individual interpretations of these signs and symptoms as inimical to weight control, also contributed to the individual's distress. Consequences include physical discomfort, flux in body image, decreased energy and motivation, and impairment of functioning in daily activities.

Physical discomfort is primarily from gastrointestinal symptoms like severe fullness, bloating, indigestion, and abdominal pain. The self-altering properties of symptoms are distressing and produce a flux in body image, alarming the individual that bodily changes have occurred whether imaginary or real. Implicit in the remarks of some subjects is their anxious but irrational conclusion that the overweight which they vehemently dread, is manifest after just one episode of overeating.

> . . . I start to feel bloated from all the salt, or my hands swell and my rings are tight; my face is puffy and there are dark circles under my eyes.
>
> . . . You turn over in bed, your stomach follows you. You start to imagine that you are putting on a great deal of weight immediately.

Sluggishness, exercise intolerance, and decreased motivation may follow overeating episodes and may interfere with the performance of daily functions and responsibilities.

> It is difficult to move briskly. In an emergency situation, [at work] if I ate a lot, I feel tired; less alert; sluggish.

Long-term consequences of overeating include the development of obesity, which, as has been discussed, has additional serious health risks and other consequences.

Some responses to overeating were of a cognitive, emotional, or behavioral nature. Cognitive responses included avoidance, diminishing the importance of

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overeating, externalizing the cause of overeating, and distorting one's motives for overeating. Emotional distress was a common response. Subjects had personal methods to track their overeating, and behaviors for coping such as restricting food intake or eliminating non-nutritive foods from their environment.

Summary

Preconditions, functions, and patterns of overeating were described through qualitative analysis. These include stressors, negative moods, availability and sense cues, and culturally sanctioned settings, such as commemorations and holidays. The general functions of overeating were to postpone or alleviate unpleasant experiences and to boost sagging affect. Decreased awareness of initiation and difficulty terminating eating, maldistribution of food intake, excessive quantity, inadequate quality, and compulsive craving were prominent patterns of overeating. Consequences of overeating are related to symptoms of physiological changes induced by these episodes. Physical discomfort, fluctuation in body image, decreased energy, and impairment in daily functioning are consequences identified in this study. Subjects monitored their overeating, and reacted cognitively, emotionally, and behaviorally. Responses included avoidance, diminishing the importance of overeating, externalizing the cause of overeating, distorting one's motives for overeating, and emotional distress. Behavioral coping behaviors were devised, such as the restriction of food intake or avoidance of non-nutritive foods.

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CHAPTER 5

DISCUSSION AND CONCLUSIONS

DISCUSSION

This discussion addresses the findings of the weight history interviews, study hypotheses and model, and selective qualitative findings. Where applicable, quantitative data are compared with qualitative findings. Subsequently, limitations of this study, and implications for nursing research, theory, and practice are addressed.

Discussion of Weight History Findings

The weight history data provide insight into some aspects of the frequency of overeating, the prevalence of factors predisposing to overeating and overweight, and risks for disease in this sample. Since nearly 40% of the sample were employed nurses, and remaining participants had occupations associated with health care, it was erroneously assumed that eating behavior would reflect wise management of these matters relating to personal health. This misjudgment is apparent in weight history findings, e.g., the frequent rate of overeating and strikingly poor nutrition.

Magnitude of the Problem

The considerable severity of problems with overeating, nutritional adequacy, and overweight control in this group are mirrored in weight history data. Indicators

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of these difficulties are: 1) The frequent rate of overeating episodes; 2) nutritional deficiencies; 3) weight fluctuations; and 4) restrictive diets.

According to the majority of this group, overeating involves ingestion of excessive quantity, eating until one is extremely full, eating food which is low in nutritional value, and/or eating in the absence of hunger. With respect to weekly calorie requirements, 35% of the sample were overeating, and 20% consumed less calories than they required. Subjects reported a relatively frequent rate of overeating in terms of their own definitions of overeating. Forty-one percent reported overeating 3 times a week and 75% estimated that they overate at least once a week.

Analysis of food records revealed that diets were rife with nutritional deficiencies. Eighty percent of subjects had at least 4. The extensive nutritional deficiencies found in reported food intake of this sample are astounding and worrisome. Many deficits were in nutrients that must be replenished daily, such as protein, water soluble vitamins, and some minerals. Selected examples of deficiencies are addressed.

Almost 19% of the sample lacked sufficient protein. As subsets of protein, amino acids are major building blocks for cellular structures, hormones, enzymes, antibodies, and function as carriers that transport molecules and ions within the cell. Muscle tissue is largely composed of protein. Amino acids are precursors to purines and pyrimidines, substances needed to synthesize DNA. Twenty amino acids are required by the body; however, only 10 can be derived from physiological processes within the body. The remaining 10 must be derived from the daily diet (Rhoades & Pflanzer, 1989).

The finding that nearly 25% of the sample did not ingest adequate amounts of potassium is of concern because potassium is necessary to prevent cardiac dysrthymias. It is necessary for neuromuscular functioning including the functioning of the heart muscle. It is found intracellularly and participates in exchanges across the cell membrane, fluid balance, and brain function. Satisfactory amounts of potassium must be ingested daily (ESHA, 1987).

As water soluble vitamins, all B vitamins and vitamin C must be replenished by the daily diet. Almost half of the sample lacked sufficient vitamin B6 (pyridoxine). The metabolism of amino acids, the conversion of protein into energy, and glycogen into glucose for use by the muscle tissue are all dependent on adequate vitamin B6. Pyridoxine is also necessary for the synthesis of some amino acids and for converting some amino acids to hormones (ESHA, 1987).

The widespread deficiency of panthothenic acid (92%) is of concern because this substance is necessary for the metabolism of fats, carbohydrates, and amino acids as well as the synthesis of cholesterol, acetylcholine, and steroid hormones (ESHA, 1987). The intake of vitamin C was inadequate in 27% of the sample. This vitamin is key in the formation and maintenance of connective tissue, including collagen, and in maintaining the strength of blood vessels. Vitamin C also has a role in the metabolism of some amino acids, epinephrine, norepinephrine, and the synthesis of thyroxin (ESHA, 1987).

The patently poor intake of calcium and iron in a sample almost totally comprised of women 18 to 50 years of age is startling. These substances are especially important for women. Calcium is critical to the prevention of osteoporosis

and iron aids in the restoration of blood lost from menstruation. Sixty-six percent of the sample did not consume adequate amounts of calcium and the diet of 57% lacked sufficient iron.

Calcium contributes to the strength of bones and teeth, the transmission of nerve impulses, and factors necessary for blood clotting, and coordinated muscle contractions, including those of the heart. It also plays a part in the function of some enzymes, the formation of acetylcholine, and the absorption of vitamin B12 (ESHA, 1987).

Iron is a major constituent of hemoglobin, which carries oxygen to the cells. In addition to deficits of iron in the diet, iron deficiency anemia can also be caused by inadequate intake of vitamin B6, Folacin, vitamin C, and copper (ESHA, 1987).

The deficient intake of copper was ubiquitous; 95% of the sample lacked sufficient copper in their diets. Copper participates in the production of red blood cells, absorption and transport of iron, wound healing, maintenance of the myelin sheath encircling some nerves, formation of bone, synthesis of RNA, synthesis of collagen, oxidation of vitamin C, and metabolism of fatty acids (ESHA, 1987).

Sixty-six percent of the sample had diets deficient in fiber. Inadequate fiber in the diet has been associated with diverticular disease in the gastrointestinal tract and cancer of the colon and rectum. It has also been linked to breast cancer, constipation, elevated serum cholesterol, diabetes mellitus, ischemic heart disease, and gall bladder disease (ESHA, 1987).

Almost 60% of the sample had maintained their weight for less than one year, demonstrating that the body weight of this group was quite unstable. Weight

fluctuations are likely to reflect repetitive dieting (Lissner et al., 1991). Considered together in this sample, weight fluctuations, overeating, and undereating suggest the possibility of a cyclical pattern of both chronic overeating and undereating. Longitudinal study would be necessary to validate such a trend.

Predisposition for Overeating and/or Overweight

In addition to attempts to follow overly restrictive diet regimens, parental overweight and aspirations to attain unrealistic weight goals, are known to increase the likelihood of overeating and overweight (Daniels, 1984; Loro & Orleans, 1981; Rodin et al., 1984). Such factors were frequently identified.

Although it is unclear whether their estimates of parental overweight corresponded with biomedical standards, 75% of the sample conveyed that at least one of their parents was overweight. While 40% of the sample were found to be overweight, obese, or severely obese, over 56% stated that they were trying to lose weight. This discrepancy may point to the prevalence of unrealistic weight goals in relation to epidemiologically based medical recommendations.

Health Risks

The high rate of overweight, weight fluctuations, and nutritional deficiencies, if persistent, are all risk factors for seriously incapacitating morbidity and mortality from diseases such as diabetes mellitus, hypertension, heart disease, some cancers, arthritis, gout, and gallbladder disease (National Institutes of Health, 1985; Rimm & White, 1979).

Some health risks related to nutritional deficiencies have been discussed. Inspection of dietary data reveals trends associated with risks for cancer and heart disease. Over 20% of the sample ingested excess amounts of total fat. The excessive consumption of fat on a regular basis is associated with several types of cancer, including breast, colon, and prostate cancer, as well as heart disease (U.S. Department of Health & Human Services, 1990). When other dietary factors which are among those associated with a predisposition to cardiac disease (Department of Health & Human Services, 1990) were analyzed, their frequency was quite alarming. Over 27% consumed too much saturated fat; and over 25% ingested excessive amounts of cholesterol. The diet of over 40% of the sample contained excessive amounts of sodium.

Summary of Findings for the Hypotheses and Study Model

Findings of all hypotheses and the study model will be briefly summarized prior to discussion of their implications. In conceptual terms, hypotheses which were supported include the statements that: Stressors Contribute to Negative Mood States; Problem-Solving Coping Strategies Alleviate Negative Mood States; Tension-Releasing Coping Strategies Exacerbate Negative Mood States; and finally, Overeating Exacerbates Negative Mood States; but only in the specific context of frequent use of strategies to control overeating and overweight.

Hypotheses, stated in conceptual terms, which were not supported in these analyses, are delineated in the following statements: Stressors evoke Problem-Resolving and Tension-Releasing Coping Strategies; Stressors elicit Overeating; and Overeating exacerbates Negative Mood States.

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The study model explained 45.65% of the variance in Negative Mood States. In conceptual terms, listed in their sequence of entry in hierarchical regression, variables stated in conceptual terms, explained the following respective amounts of variance: Stressors, 20%; Problem-Resolving Coping, 6.17%; Tension-Releasing Coping, 14.6%; Overeating, 0%, Overweight Control Strategies, 0%, and Overeating in the context of frequent practice of strategies to control overeating and overweight, 4.95%. As indicated, the independent contributions of Overeating and Overweight Control Strategies were not statistically discernible.

Discussion of Findings for the Hypotheses and Study Model

Findings for each hypothesis and the model will be discussed, using conceptual terms for the pertinent variables. Findings for relationships found in both the hypotheses and the model, tested by both simple and hierarchical regression, were congruent although, as expected, the amount of explained variance differed.

Hypothesis 1

The support of Hypothesis 1, that Stressors contribute to the severity of Negative Mood States, was substantial, explaining 20% of the variance. This has implications for: 1) The possible presence of mediators of this relationship; and 2) the place of this finding in the dynamics of preconditions to overeating.

The findings for Hypothesis 1 are consonant with a plethora of support in other research (Delongis, 1985). As discussed previously, Delongis (1985) points out that this relationship is characteristic of only a portion of subjects in these supporting studies, suggesting that mediators, such as poor self-esteem, would distinguish those

for whom this linkage holds. In light of Delongis' (1985) assertions, the finding that such a large percentage of variance was explained in these results, raises the question whether such a mediator, although unidentified, was prevalent in the study sample.

The confirmation of the linkage between Stressors and Negative Moods is a validation of one segment of the configuration of associations among stress, negative moods, and overeating, proposed by Loro and Orleans (1981). These investigators posited that Stressors produce Negative Moods, which then evoke Overeating. Implicit agreement with these dynamics was demonstrated in a number of studies (Atkinson & Ringuette, 1967; Castelnuovo-Tedesco & Schiebel, 1975; Rotmann & Becker, 1970). When researchers found that an individual ate in response to a negative mood, and was unable to identify a stressor which preceded the distress, the existence of such a stressor was not in doubt; the subject's recall was impugned.

The support of Hypothesis 1 gives credence to the notion that Stressors contribute to Negative Moods, as Loro and Orleans (1981) opine. The other link in the investigators' explanatory sequence, that negative moods are related to overeating, was not validated statistically. Although there was abundant support from qualitative data and the literature (Castelnuovo-Tedesco & Schiebel, 1975; Edelman, 1981; Hoiberg et al., 1980; Hudson & Williams, 1981; Leon & Chamberlain, 1975a; 1975b; Lowe & Fisher, 1983) for the linkage of Negative Mood States with Overeating, Negative Mood States were not correlated with Overeating ($r=0.1576$, $p=0.1653$). Since statistical findings were inconsistent with other evidence of this phenomenon, their veracity should be retested with more appropriate and sophisticated statistical methods, such as causal modeling, which have the ability to specify direct and indirect effects.

Hypotheses 2 and 3

Testing of these study hypotheses failed to support the assertions that Stressors evoke Problem-Resolving and Tension-Releasing Coping strategies. This is contrary to vast theoretical and empirical support for this relationship (Lazarus & Folkman, 1984). A possible explanation for the failure to parallel previous findings, may rest with the measurement of Stressors and Coping. The problem may stem from the overly global or restricted range of information which could be captured by the employed measures, in relation to the conceptual background of the study.

Lazarus and Folkman (1984) emphasize the diversity of the characteristics of stressful situations, and the specificity of coping responses arising from an extensive array of possible coping efforts. While it is well standardized for a sample of young and middle aged women such as this sample (Norbeck, 1984), the Negative Events Score of the Life Events Questionnaire (LEQ) may be too global a measure to test these propositions within the context of Lazarus' (1980) constructs. Although it is designed to represent several potentially stressful domains, such as relationships, work, health, and such, the LEQ does not have subscale measures to mark the particular subdomain in which situations appraised as stressful originate. Thus, the LEQ may have been inappropriately used in this study. The Daily Hassles Scale, the other instrument employed to measure Stressors, is similarly structured, and may be analogously limited.

Properties of the measurement of Coping may also contribute to the lack of statistical discernibility of relationships proposed in Hypotheses 2 and 3. While examples of typologies of coping (Menaghan, 1983; Pearlin & Schooler, 1978; Wills

& Schiffman, 1985) demonstrate the great variety of coping efforts and styles which may be brought into play in contending with stress, only two coping styles were measured in this study. The Jalowiec Coping Scale, the instrument used to measure Coping, was designed to measure only 4 coping styles. The subscale scores representing 2 of these styles, Support-Related and Tension-Modulating, could not be analyzed since they failed to demonstrate an adequate level of internal consistency. Only Problem-Resolving Coping and Tension-Releasing Subscales had adequate internal consistency and were retained in the analyses.

The lack of a more fully articulated theoretical basis for the Jalowiec Coping Scale (Personal Communication, A. Jalowiec, 1987) was a serious limitation in analyzing coping subscale scores. On the basis of their factor analyses, Jalowiec et al. (1984) attempted to assign terms to describe subscales by inducing the type of coping style suggested by items that loaded primarily on the same factor.

The Problem-Resolving subscale is composed of items that were interpreted as "cognitive . . . autonomy oriented, goal directed, purposive, or reality oriented" (Jalowiec et al., 1984, p. 160). The Tension-Releasing Subscale was found to be characterized by ". . . swearing, crying, eating, smoking . . . physical and emotional types of withdrawal and helplessness, pessimistic, impotency-related . . . or regressive" behavior (Jalowiec et al., 1984, p. 160). The Tension-Modulating Subscale represents "acceptance, resignation, optimism, humor, prayer and inactivity" (Jalowiec et al., 1984, p. 160). The Support-Related Subscale subsumes coping efforts such as ". . . turning outside of oneself for help, such as blaming or taking tensions out on others, {and} seeking help or comfort from others. . . " (Jalowiec et al., 1984, p. 160).

Although their diametrically opposed approaches offer some intriguing comparisons, Problem-Resolving Coping and Tension-Releasing Coping are not sufficient to represent the applicable range of coping efforts and styles. The lack of an articulated theoretical basis for the Jalowiec Coping Scale was also a serious limitation in analyzing Coping Subscale Scores. While Stressor and Coping measures may have been limited in adequately testing Hypotheses 2 and 3, these same measures were used in analyses of Hypotheses 1, 4, and 5 without reservation.

Hypotheses 1, 4, and 5 all have Total Mood Disturbance (TMD) as their dependent variable. It was found that independent variables in the three hypotheses (Stressors, Problem-Resolving Coping, and Tension-Releasing Coping) were correlated with many negative moods represented in TMD. Total Mood Disturbance was assumed to represent the critical array of negative mood states and the independent variables in Hypotheses 1, 4, and 5 were found to be correlated with many of the negative mood subscales.

This contrasts with Hypotheses 2 and 3. The full array of the dependent variable of Coping Styles was not represented. Independent variables in this case (Stressors) may have been associated with types of Coping Styles that were not represented.

Hypotheses 4 and 5

Tests of these hypotheses demonstrated the contra-distinction in coping styles which were measured. The propositions that Problem-Resolving Coping and Tension-Releasing Coping were related to Negative Moods, but in opposite directions, was supported statistically. As hypothesized, Problem-Resolving Coping

had an alleviating effect on Negative Mood States, while Tension-Releasing Coping styles worsened them. Problem-Resolving Coping is directed toward the achievement of resolution of the underlying problem of the stressful situation. The findings here indicate that it also has an effect on reducing emotional distress, which is the primary function of emotion-focused coping (Lazarus & Folkman, 1984).

Tension-Releasing Coping explained an ample 26% of the variance in negative moods. This coping style is related to behaviors such as the abuse of alcohol or drugs, which may be quite self-destructive, even ruinous, eroding self-esteem, and severely compromising physical health (Nathan, 1985). Research on addictive behaviors provide parallel support for this hypothesis. Long-term use of alcohol, for instance, is associated with severe depression (Aneshensel & Huba, 1983; Neff & Hussaini, 1982). The large percentage of variance in negative moods explained by Tension- Releasing Coping may reflect these pernicious effects.

The redundancy of the variable Tension-Releasing Coping Mean Use with the Overeating variable, Average Percentage Over Weekly Calorie Requirements, was questioned. Although overeating is one item found on Jalowiec's Tension-Releasing Coping Scale, the Overeating measure in this study, Average Percentage Over Weekly Calorie Requirements, and the Tension-Releasing Coping subscale were not correlated ($r=0.1650$, $p=0.1365$). This implies that the Tension-Releasing Coping and Overeating measures captured phenomena which were dissimilar.

Hypotheses 6

The somewhat ambiguous findings for Hypothesis 6 may have been influenced by the measurement of Stressors and Overeating. Qualitative data, however, clearly

supported this proposition that Stressors evoke Overeating. In an additional analysis, the possibility that heavier individuals overeat in relation to stress to a greater extent than do those of lesser weight was considered. This proposition has been advanced in the literature, but never tested statistically.

When overeating was regressed on each stressor measure individually, negative events explained 5.3% of the variance in overeating ($p=0.041$). The influence of Daily Hassles on Overeating remained non-significant. The Daily Hassles Score represents the general magnitude of annoying daily occurrences that have transpired over the course of the day on which the instrument is completed. Overeating was measured for the previous week. Daily Hassles, which reflects stressful events on the day the tool is filled out, cannot be expected to predict overeating from the previous week.

The literature attests to the validity of the conventional wisdom that stressors may elicit overeating as a means of coping (Atkinson & Ringuette, 1967; Hockley, 1979; Rotmann & Becker, 1970; Swanson & Dinello, 1970). Qualitative data also supported this proposition. Stressors most frequently cited in interviews as stressful preconditions to overeating are 1) work overload and the related time crunch on the job, and 2) inadequate emotional and other types of support while juggling multiple roles.

Work overload resulted in overeating through its effect on eating patterns. Because of the pressure of deadlines for work completion, subjects skipped their meals and breaks. This eventually resulted in overeating at remaining meals, bingeing after work, or the consumption of snack food, often high in fat and sugar,

at their work stations. Harried individuals with multiple roles were poignantly insightful in conveying that their overeating was related to insufficient opportunity to converse with friends, or receive needed nurturance from others.

That the statistical finding linking some Stressors (Negative Events) to Overeating is explained by the coping functions of Overeating, is strengthened by other interview data. This data indicated that the emotional utility of coping by overeating, was found to lie in the alleviation or postponement of unpleasant experiences and the boost supplied to flagging affect. Relief of frustration, procrastination, escape, nurturance, comfort, and reward - properties found in interview data - were subsumed by these central functions.

The proposition that the relationship between Stress and Overeating depends on higher degrees of overweight, advanced by many researchers (Atkinson & Ringuette, 1967; Buchanan, 1973; Castelnuovo-Tedesco & Schiebel, 1975; Hockley, 1979; Leon & Chamberlain, 1973a; 1973b; Rotmann & Becker, 1970) was not statistically supported in this study. Moreover, BMI was inversely related to excessive caloric intake. From this, one can infer that at the time of the study, heavier individuals were curbing their caloric intake. While individuals with higher weight were consuming fewer calories in relation to their caloric requirements during the week in which they keep food records, other findings suggest that during the previous year heavier individuals overate more frequently. On average, however, heavier individuals dieted at the same rate as those having both lesser weight and similar numbers of overeating episodes.

For validation and exploration, this assertion requires longitudinal investigation, but cross-sectional support from this study includes the following: 1) When the Number of Overeating Episodes Per Year was regressed on BMI, BMI explained 5.5% ($p=0.0366$) of the variance in the Number of Overeating Episodes Per Year; 2) hierarchical regression analysis revealed that the Number of Overeating Episodes Per Year explained 8.5% ($p=0.0091$) of the variance in Weight Fluctuations during the previous year, irrespective of weight. Since it has been found that weight fluctuations reflect repetitive dieting (Lissner et al., 1991), it might be inferred that the Number of Overeating Episodes, regardless of weight status, was associated with more frequent dieting. Thus, heavier individuals reported more overeating episodes but had as many fluctuations in weight as did individuals of lesser weight. Heavier individuals may have dieted at the same rate as other subjects, however, because weight fluctuations are associated with dieting.

Hypotheses 7 and 8

Despite support from the literature and qualitative data, Overeating was not found to be associated with worsening Negative Mood States as Hypothesis 7 proposed. In contrast to the statistical analysis, the qualitative data clearly supported this proposition; it was not ambiguous. It is possible, then, that Overeating may be related to Negative Mood States. Subjects most frequently named boredom, anxiety, and depression as moods that preceded overeating. Self-pity, self-denigration, and guilt were also commonly reported.

Although Overeating and Negative Mood States were not statistically correlated, reciprocal cycles of Negative Moods and Overeating, were reported in

interviews with subjects. To exemplify this phenomenon, comments of a subject quoted earlier are reiterated.

> I was eating because I was depressed, then I was depressed because I was eating.

A surprising finding was that although a relationship between Overeating and Negative Moods was not statistically discernible, this relationship was significant in the context of frequent use of Overweight Control Strategies. Statistical analysis suggests that the defining feature of the relationship between Overeating and Negative Mood States was the frequent use of Overweight Control Strategies. The relationship proposed by Hypothesis 8 was thus partially supported. It was however, not completely supported, since the direction of the relationship indicated by the statistical analysis, was opposite to the one predicted. Overweight Control Strategies were not found to buffer the effect of Overeating on Negative Mood States; they were found to exacerbate the effect on Negative Mood States.

A search for possible explanatory factors of this finding was undertaken by a comparison of the characteristics of respondents whose Overweight Control Strategies Average Frequency Scores fell in the upper-third of the distribution of this variable (n=25), with those whose scores fell in the bottom one-third (n=25). Employing t tests, comparisons demonstrated that there were no significant differences in mean Negative Events Scores, mean Daily Hassles Cumulative Severity Scores (both Stressors), mean Problem-Resolving Mean Use, mean Tension-Releasing Mean Use Scores (Each Coping), mean Body Mass Index or mean Average Percentage of Weekly Calorie Requirements (Overeating). Review of the distributions of variables and descriptive statistics pointed to some differences.

This analysis indicated four distinguishing characteristics of the individuals who frequently practiced Overweight Control Strategies: 1) They may have been at greater risk to develop obesity; 2) they appeared to be more invested and more aggressive in attempts to control overeating and overweight; 3) they were comprised of a higher ratio of single parents, and students; and 4) in general, they had lower annual family incomes.

The individuals who reported more frequent use of Overweight Control Strategies reported a higher incidence of overweight in both of their parents (25%) than those with less frequent use (12%). Despite this possible indication of a greater genetically determined proclivity to develop obesity, these individuals were more often of normal weight.

Although they reported that they believed that they were overweight as often as individuals who reported more infrequent use of Overweight Control Strategies, subjects who frequently used these strategies were twice as likely to report that they were trying to lose weight. These findings may result from the greater investment in battling weight control, found in individuals with more frequent use of Overweight Control Strategies. In light of such an investment, overeating may have been an especially disappointing set-back.

This salience of weight control for persons who frequently practiced overweight control strategies, is also reflected in their active approach to attaining their weight goals. In addition to having a higher activity level, individuals with frequent use of these strategies were more often enrolled in formal treatment for weight control (20%), than individuals with less frequent use of Overweight Control

Strategies (0%). Their food intake was also more often restricted, since they more frequently ate less calories than they required.

Roles and resources may differentiate those with frequent use of Overweight Control Strategies. A higher incidence of students and single parents and lower annual family income was found in individuals who more frequently used Overweight Control Strategies when compared with those who less frequently used these strategies. These factors may have been distinguishing sources of stress.

Discussion of the Study Model

The study model was very well supported. Over 45% of the variance in Negative Moods was explained, despite marginally adequate power and the limitations in the measurement of Stressors, Coping, and Overeating, discussed previously. The contributions of Stressors and Tension-Releasing Coping were especially impressive, together explaining 34.6% of the variance in Negative Mood States. While the Stressor variables had the advantage of being the first to be forced into the model, their relationship to Negative Mood States is well established in the literature. The explanatory contribution of Tension-Releasing Coping is also notable, however its linkage with Negative Mood States is also well documented. Improved measurement of other Coping components, Overeating, and Overweight Control Strategies may increase the statistical discernibility of their contributions to Negative Mood States.

Discussion of the Qualitative Findings

In addition to providing alternative data for assessing the validity of the study hypotheses and model, qualitative data were supplementary and revealing of the daily "lived experiences" (Oiler, 1982) of the participants. The subjects' responses to their overeating behavior were of particular interest, pointing to the influence of sociocultural values, and the cycle of disruption and restoration of the balance of nutrition and activity patterns, set in motion by overeating.

Responses to overeating derived from these interviews can be understood in terms of pathways depicted in Figure 4. Reframing, Discordance, Avoidance, and Emotional Distress were responses to overeating that are related to adaptation. Optimal adaptation is promoted by the physical and psychological integration of the individual. Characteristics, dynamics, consequences of, and responses to nutrition and activity patterns, both mirror and influence that integration.

Responses to overeating are shaped by the sociocultural context that promotes the value of self-control, accountability, and thinness - particularly in women - and censures overeating as evidence of gluttony, greed, and personal weakness. These values are internalized by way of socialization and served as the basis for responses to overeating.

Two initial, but at times alternating, patterns of cognitive responses emerged. Changing the meaning of the situation, a function of coping identified by Pearlin and Schooler (1978), was characteristic of the first response pattern termed Reframing. By Reframing, the individual interpreted the overeating episode in such a way as to minimize the individual's responsibility for generating it. Devaluation and

Responses to Overeating

Internalized Sociocultural Values for Thinness and Self-Control

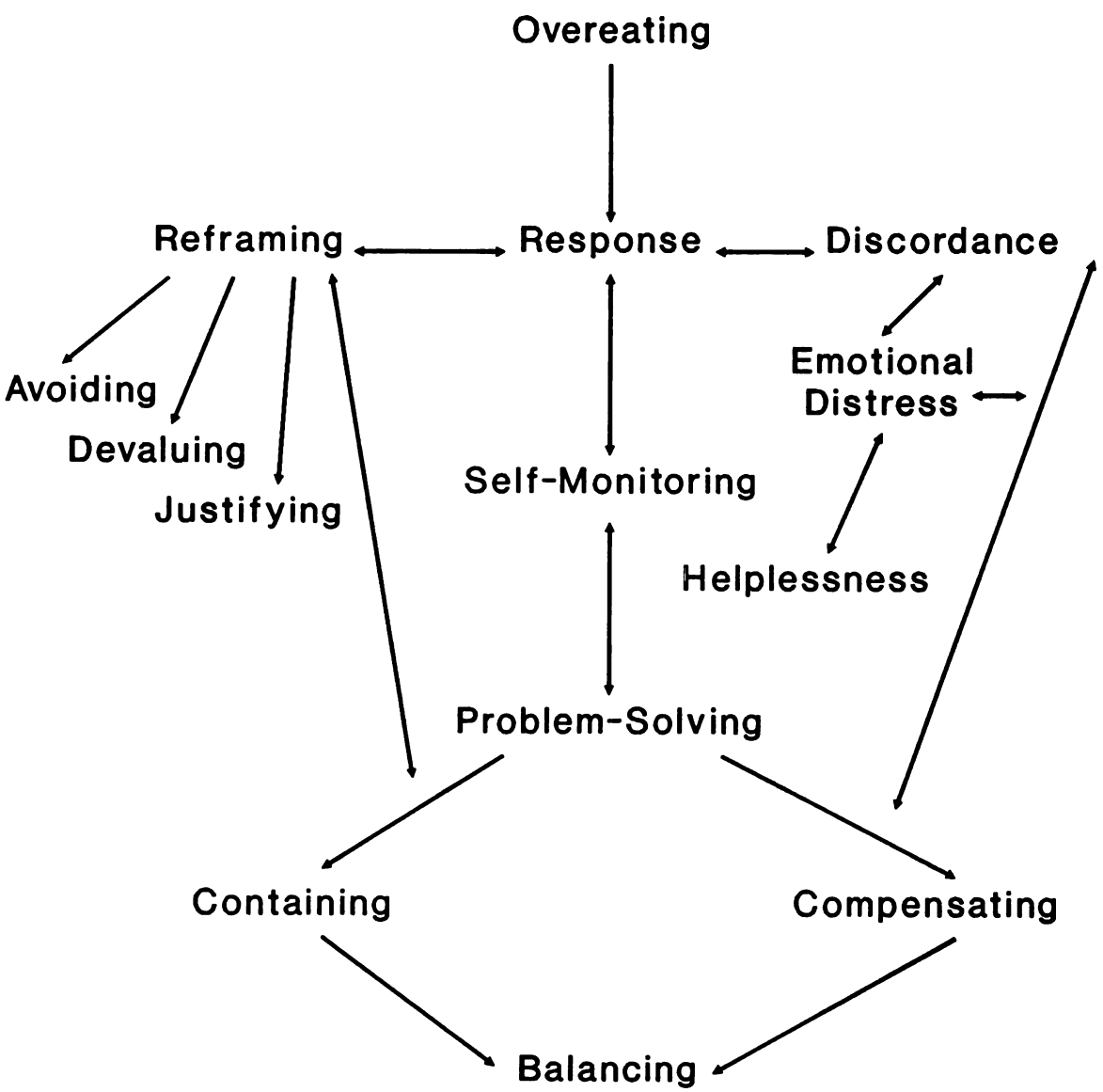

Figure 4

Justification were major modes of Reframing. By devaluing the importance of overeating, or justifying it on the basis of faulty logic or outside influences, subjects were able to minimize their role in overeating and/or externalize its imputed cause. This promotes the protection of self-esteem and evasion of emotional distress. Several examples illustrate this response pattern.

> I don't worry about it [overeating]. I don't do it that much. If I did it more than once a week, I would worry.
>
> Food allergies may be the reason I do it [overeat]. That's my personal theory. It controls satiety.
>
> I tell myself that my sugar level is down and I need some [cookies, chocolate]. Then I go and buy something sweet.

Subsequently, these individuals either shifted into a protective mode of avoidance and denial, or with self-criticism at bay and despite the eclipse of their sense of responsibility for overeating, were able to engage in problem solving. Behavioral coping efforts to control overeating ensued.

The second pattern of response was characterized by Discordance. This was a disconcerting experience of the friction caused by inconsistencies between one's goals and beliefs about thinness and self-control and one's contradictory behavior, in this case, overeating. The meaning of the situation was not changed; it was consonant with the values of the American sociocultural environment. The role of personal responsibility was maximized.

> I'm concerned every time [I overeat], because I'm not dealing with what I need to be. Now I know that I use overeating as unsuccessful coping; but I still do it.

> I know health is a factor. The Doctor mentioned that it would be good for me to lose weight. So, in the back of my mind I'm thinking about my health, but I'm not really doing anything about it. I am concerned, but I am not doing anything about it.

A response characterized by a sense of discordance may deteriorate into a siege of severe self-criticism, and submersion in an abyss of emotional distress.

> I think about it [overeating] all day. I'm not feeling good about myself and feel heavy and unattractive.

This self-denigration may result in paralyzing perceptions of helplessness and passivity.

> My relationship with food worries me. I'm in treatment [for overweight]. I wonder if I will "fall off the wagon".

> It concerns me after I eat. At bedtime. I feel bad. It is depressing but I don't do anything to correct it. I think: "oh-oh; here it goes again."

It was also possible for the individual distressed by discordance to mobilize toward engagement in problem solving, eventually enacting behavioral coping efforts.

> I get depressed and only wear old black stretch pants. Then I know I've got to do something and I think about what I have to do to lose weight.

Some individuals who experienced discordance however, had very mild emotional distress, and shortly become involved in problem-solving efforts.

These cognitive patterns of minimizing or maximizing the individual's responsibility for overeating were not mutually exclusive. Subjects shifted from one to the other. An example of a cognitive response to overeating that was transposed from Devaluing to Discordance is illustrative. This change in response appeared to be based on the subject's appraisal that she had reached a crucial weight level, impelling her to take notice.

> I get to that point. For awhile I told myself that I didn't care. It [the onset of concern] is the point when my clothes don't fit and I am going to the fat [clothes] store. I never feel like I look good at this weight.

Self-monitoring was the initial behavioral coping activity. It may influence cognitive responses, emotional responses, and problem solving as well as behavioral efforts to control overeating. Distinct self-monitoring patterns were reported. Some subjects attended to short-term eating behavior, while others, like the last subject quoted, scrutinized themselves for signs of weight gain, such as clothing fit or increased body weight. The use of body weight, inspection of one's body, or perceptions about the fit and feeling of clothing were self-monitoring activities of weight control also reported by Allan (1988). Self-monitoring of eating behavior, however, was not discussed because the focus was on how the individual decides on appropriate body weight.

Subjects who monitored their short-term eating behavior took notice of their intake of specific foods that they had particular difficulty resisting and their total daily intake, or the number of overeating episodes that they experienced over several days. Those monitoring signs of overweight looked for changes in their body indicative of weight gain. This was gauged by perceptions of the fit, appearance, and feel of clothing and measurement of body weight. Some persons had a critical weight which served as a "panic value", signaling the urgent need to take action to reduce weight.

The function of behavioral coping efforts used by subjects in this study was to correct disequilibrium, by limiting and redressing overeating, i.e., restoring homeostasis of nutrition and activity. Prevention of disequilibrium was achieved by

activities which may be subsumed by the concept of "Containment". These were activities geared toward limitation and circumscription of potential or actual overeating, before or during overeating episodes. These activities prevent overeating by controlling the aspects of the environment, such as the limitation of unwise food choices by the exclusion of non-nutritive foods from the home environment. Containment established restraining boundaries for overeating episodes, for example, the restriction of foods eaten or duration of the episode.

The redress of imbalances after overeating episodes was also directed toward renewal of homeostasis. These activities were compensatory and fall under the conceptual rubric "Compensation". Examples were episodic exercise, formal treatment, and personally designed regimens.

In summary, responses to overeating were shaped by sociocultural values for thinness and self-control. Two communicating major cognitive response pathways either minimized or maximized the individual's responsibility for overeating episodes.

CONCLUSIONS

Limitations

Threats to validity from measurement, selection, history, and control of potentially confounding variables were the major limitations of this study. Some measurement problems have been discussed. These include the global measures of Stressors and limited measure of Coping. There is also a need for further refinement of Overeating. It is unclear whether individuals ate less or recorded less food intake

because they were being studied. Although some subjects stated this was the case, some commented that they ate more under these circumstances.

Another consideration is that the overeating measure may not be a relatively valid and reliable index of the subjects' food intake over the week recorded. This is suggested by the finding that mean calories of the sample were probably moderately insufficient to maintain the mean weight of the sample, given typical activity levels. Since it has been found that subjects' report of their current weight is usually reliable (Lissner et al., 1991), it could be surmised that food intake may have been underreported.

It is also possible that an underestimate of calories resulted from data entry procedures. A relatively small number of recorded foods could not be computed as part of subject food intake, since they were not in the program data base. A thorough and updated review of software for the assessment of nutritional content in this type of research is greatly needed. This would facilitate informed choice of programs which may most accurately provide information required, in relation to the aims of the researcher.

In addition to the accounting of all food ingested, reliability of data entry, and computation of recorded food intake, may be improved by an evaluation of interrater reliability. Lowe and Fisher (1983), were the only investigators in this review who reported the use of this technique. These investigators compared two independent judgements of research assistants, regarding the accuracy of estimates of caloric intake from subjects' food intake records, for 3 of 13 days of self-monitoring. All correlations were above .80.

In an attempt to improve the reliability of the reporting of food intake, Leon and Chamberlain (1973b) used an innovative approach, by enlisting a relative or friend of each subject to observe that subject's food consumption over one day. The subject's report of food intake and that of the relative or friend were subsequently compared. Agreements ranged from 72.4% to 100%. Discrepancies were then analyzed in greater depth. In addition, the description of marital status may have been distorted, in view of questions used to elicit that data. Traditional configurations of family structure were assumed in these questions; only legal, heterosexual unions of marriage could be recognized. Information pertaining to the committed bonds of unmarried couples, homosexual as well as heterosexual, was not included in the response options. This variable, however, did not affect results.

The influence of self-selection in this study is one which continually plagues naturalistic research in this area. The recruitment of adults who overeat, regardless of their weight status was purposeful, however. The choice of sample sources was also deliberate, ensuring that a great majority of subjects would be women. The heterogeneity of the sample in terms of occupational status, however, obscures some of the differences which may have existed between subgroups. Since there were small numbers of subjects in some occupational categories, comparisons among subjects by occupation were not possible.

Confounding variables may have also influenced findings. Covariates which may obfuscate findings include previous mental health and parental overweight. The removal of the effects of previous mental health from the Negative Mood State measure is especially germane in the analysis of the study model. In particular, the

finding that individuals who frequently used Overweight Control Strategies had more severe Negative Mood States than those with less frequent use of these strategies, may have been altered. If the effect of previous mental health was controlled, this relationship could be discovered to be a function of poorer mental health in the frequent strategy users prior to the study, in comparison with those who less frequently engaged in Overweight Control Strategies.

In analyses in which overweight of more than 20-30% is the dependent variable, the contributions of parental obesity should be controlled, using a more reliable measure of familial obesity. Possible genetic influences on overweight could then be recognized. It is essential to test the relationship between Overeating and Overweight in such analyses.

Implications

Research and Theory

A myriad number of questions for further research and theory development emerge from this study. The first consideration is who should be studied. The second is how further inquiry might be organized.

There is a need for further investigation of stress, coping, and overeating in women who are intensely involved in weight control efforts, and have a history of parental obesity. Special attention should be given to the single parent role. These unhappy overeaters are engaged in rigorous efforts to control their weight; but, although they are "dug-in", their battle may be an uphill struggle. They are persisting in the face of possibly unfavorable odds imposed by inherited tendencies to develop

obesity. Their behavior may also be viewed as the product of staunchly held social values for self-control and the pursuit of thinness.

Caucasian, middle-class, young adult and middle aged women are almost exclusively the subjects of studies concerning overeating and overweight. While research of these persons should continue, priority for study should be based on the identification of groups in whom overweight is most prevalent and who are likely to have significant sources of stress. A report on the health of the nation, sponsored by the U.S. Department of Health and Human Services (1990), specifies the groups among adults over 20 years of age, who are at risk for life-threatening chronic disease, since their rates of overweight are most prevalent. The groups at risk are: 1) Black women - an astonishing number (44%) of Black women are overweight; 2) Mexican-American women - their rate of overweight (39%) is only partially accounted for by socioeconomic status; 3) Native Americans - somewhere between 29% and 75% of these individuals are overweight; 4) low income women - while overweight is found in 25% of women above the poverty line, 37% of women below the poverty line are overweight; 5) the disabled - overweight is estimated to affect 36% of them; and 6) persons with high blood pressure. Fifty percent of women and 39% of men with this condition are overweight.

High fat diets, insufficient physical activity, and inadequate preventive services are identified by this government report (U.S. Department of Health & Human Services, 1990) as factors which contribute to overweight. That only 25% of men and 30% of women who are overweight, are combining appropriate dietary changes with increases in physical activity in efforts to lose weight is also noted (U.S. Department

of Health & Human Services, 1990). While such measures are basic and critical to weight control, modification of patterns in cognitions, attitudes, and behaviors in order to control overweight are complex and recalcitrant processes. The role of overeating as coping and stressor may be a major component of this process, however, at present there is an incredible gap in research of these phenomena. Fulfillment of the carefully assessed mandate to reduce overweight in vulnerable groups will require further studies on the overweight control process in these groups, including the role of overeating as coping and stressor.

Study of racially and culturally diverse individuals concerning stress, coping, and overeating may adjust and widen our perspective of the subject's world of social meanings for these concepts and their impact on health behavior. The appreciation of experiences related to degrees of acculturation and disenfranchisement may be germane and may assist us in influencing behaviors that are risks to health.

In this review, only a scant amount of research on eating and emotion has included low-income women and minority women as subjects (Holland, Masling, & Copely, 1970) even though they are particularly vulnerable, because overweight is prevalent in these groups. Poverty may increase vulnerability in these persons because it influences their dearth of resources with which to cope or insulate themselves from stress. An experience of obstructed or foreclosed opportunities to develop one's full potential and improve one's quality of life, may be particularly virulent sources of stress.

The relationships of stress, coping, overeating, and overweight in relation to functional health and adaptation in the chronically ill and disabled is also an

important topic to pursue. Since they may be forced into a sedentary lifestyle and may be exposed to chronic sources of stress, such as persistent disconcerting symptoms and disruption of their roles, overweight control may be particularly difficult in some of these individuals. It may also be particularly important to their physical health. In persons with chronic disease, such as diabetes, arthritis, or heart disease, overeating and/or overweight may exacerbate symptoms and accelerate the severity of their disease.

Little is known about eating patterns in relation to stress and coping in individuals with high blood pressure. Overeating in men is especially enigmatic, and concern is justified, since there are indications that their problems with binge eating are more severe than might have been expected (Loro & Orleans, 1981). The recruitment of men into studies of overeating and overweight is particularly difficult (Leon & Chamberlain, 1973b). Thoughtful approaches to sampling methods will be prerequisite.

Organizing concepts which may guide the direction of future research and theory development in the study of stress, coping, and overeating in overweight control are Vulnerability/Perpetuation, Dynamics, and Control.

Vulnerability/Perpetuation

Vulnerability/Perpetuation refers to factors or processes that may directly or indirectly increase the likelihood that individuals will chronically cope with stress by overeating. These are indicators of the person's susceptibility to cyclical overeating in response to stressors. Factors pertaining to Vulnerability and Perpetuation of

overeating and overweight include inherited and acquired factors that predispose an individual to develop and maintain overeating and/or overweight problems.

The only well known marker of an inherited vulnerability toward these problems is parental obesity. This study suggests that acquired factors include tendencies to eat in response to sense cues and the availability of food, social occasions, negative moods, or situations appraised as stressful. That deficient, obstructed, or ineffective coping resources and behaviors may influence the use of overeating to cope, as well as the fit and adequacy of coping, requires further exploration. Additional acquired psychosocial influences include intrapsychic conflicts and family dynamics. Health goals and behaviors are sources of acquired factors. Unrealistic goal weights, overly restrictive diets, erratic meal patterns, and inactivity are prominent examples.

Among objectives for inquiry into vulnerability to and perpetuation of overeating/overweight is the construction of an instrument or other assessment guide, comprised of weighted subscales or criteria, which predict the degree of vulnerability to overeating and identify elements that drive its cyclical reoccurrence.

Dynamics

Dynamics include stages, junctures, or processes that map the interconnecting routes and detours between the appraisal of stress and the overeating response. Generalization, threshold effects, ambivalence, and the individual's resolve at critical junctures in the weight control process may play a role in the dynamics of stress, coping, overeating, and overweight control. Body image distortions are also phenomena of interest in this regard.

It has been observed that more than one negative mood may be required to elicit overeating (Plutchik, 1976). This may indicate the operation of generalizing or threshold effects. While initially a response to one stressor, overeating may generalize to other stressors, becoming a reaction to a set of stressful situations. A critical magnitude of stress may be necessary to evoke overeating; which constitutes a threshold effect.

Ambivalence experienced by individuals struggling to control their overeating, but convinced that they must cope by overeating, has been described (Castelnuovo-Tedesco & Schiebel, 1975). This may be an important detail in progression through a series of conflicts, which some individuals must negotiate in overweight control. It may be fruitful to study and theorize about the critical junctures in this progression.

A scenario of the consecutive dilemmas to be faced is proposed with the assumptions that: 1) The culture shapes and transmits values and attitudes regarding eating behavior and relative corpulence; 2) overeating is a coping behavior; and 3) overeating, overweight, and dieting have stressful effects.

The initial milestone is reached when the individual decides to lose weight. Stress from eating and being overweight in conjunction with internalized cultural values, and possibly health concerns, motivates the individual to embark on a weight control regimen. At this point, the person has a strong desire to lose weight, but must first resist the familiar pull from the need to cope by overeating. Once into the regimen, the individual's continued motivation may be pitted against the stress of dieting, as well as the habitual need to cope by overeating. With persistence, in the

absence of any unusual and overwhelming demands, the individual may be successful with initial attempts at weight loss. He or she then enters uncharted waters, i.e., the long-term maintenance of weight control.

The environment offers other challenges: 1) The accessibility and convenience of fast food, high in fat and calories (U. S. Department of Health and Human Services, 1990); 2) social occasions rife with pressures and temptations to overeat (Allen, 1977); 3) sabotage from family, friends, and coworkers (Rand & Stunkard, 1978); 4) promotion of sedentary living by modern transportation and many occupations (Allan, 1988); and 5) the ubiquitous publicity of grim statistics, projecting doom and gloom, indicating that successful weight control in individuals with overweight problems is unlikely. This is also inconsistent with coexistent promises raising expectations for success (Fleshman, 1973), extolled by the persistent spate of alluring advertising for weight control treatments, and financed by an enormously prosperous weight control industry (Brumberg, 1988; Sugarman, 1990).

Another intriguing subject for theoretical formulation and further research, is that of the stress and coping functions of body image distortions in overeating. Since body image is a component of the self-concept (Bonham & Cheney, 1983), these distortions may be one indicator of shifts in the integration of the self. It is unknown whether body image distortions occur prior to the development of overeating and/or overweight, however they have long been recognized in some obese persons (Stunkard & Mendelson, 1967). Analyses of interview data indicated that signs and symptoms of body image distortions may have been present at the initiation of overeating and after it occurred.

Decreased awareness of the initiation of overeating and difficulty terminating it was observed from interview data. A prevalent sense of detachment from the act of eating at the initiation of the episode was reported. It was characterized by the perception that one was observing someone else, watching distantly, disembodied. It may be conjectured that this sense of detachment has coping functions. It may protect the individual from a stressor which the individual is not consciously aware of. It may also be speculated that this disembodiment, particularly in persons who respond to overeating with discordance and self-denigration, may protect the individual from their own wrathful censure. It may suspend them in a regressive state, permitting them to begin to eat types and/or amounts of food they may not, if more completely aware of their behavior. Physiological studies have found that hunger and satiety mechanisms, which may affect initiation and termination of overeating, may be disturbed in overweight individuals (Striker & Verbalis, 1987). In some individuals, the sense of disembodiment and difficulty with the initiation and termination of eating may someday be found to be corollaries of physiological mechanisms.

Stressful properties of body image distortions were apparent in reports of subjects' experiences after an overeating episode. Their bodies became sources of expansive discomfort, lacking the usual predictive parameters and self-orchestrated movement. An irrational perception that a large amount of weight had been gained from one episode of overeating was reported. After overeating, the subjects suffered extreme fullness, bloating, sluggishness, and decreased motivation. They also related having a sense that movements of parts of their body were not coordinated with the movement of other parts.

Control

Because overeating is often chronic, control at this point in time means the minimization of the associated physical and psychological consequences and distress and the effective restoration of healthful eating and activity patterns. Despite some statistics dispersed by the local newspaper as well as journal articles, there may be many individuals not represented in the research findings who are able to control their overeating and overweight after grappling with the problem. Their success is not represented in research findings because these persons were not in formal treatment for overweight control, the source from which most research subjects are drawn. The strong suggestion that successful self-management of overweight problems may be prevalent is exemplified by Schacter's (1982) survey of a small resort community. His findings supported the supposition that self-cure of obesity is more widespread than would be expected.

The cognitive, emotional, and behavioral responses to overeating found in this study point to strategies individuals use to cope with overeating. Self-monitoring, containing, compensating, and balancing are constructs in this response-control process that require further theoretical elaboration. Balancing represents a healthful level of adaptation to which individuals aspire, and it is reflected in optimal nutrition and fitness practices.

Implications for Nursing Practice

It has been pointed out that some overeating and overweight have a genetic and physiological basis or may result from deeply ingrained psychological patterns, some dating from childhood. Overeating and overweight are not simplistically

altered by every individual's wish to do so. This is evidenced by the cyclical nature of the documented recidivism in overweight control. The definitive cure for overeating and overweight have yet to be documented. Yet in our culture, stigma is easily visited on individuals who overeat and/or who are overweight for failing to exert self-control even though the role of the individual is often ambiguous. In this study the ambiguity and the stigma were reflected in subjects' responses to overeating, which vacillated between self-blame and externalization of the cause of overeating.

The ethical guidance of Pellegrino (1981) and Fadden and Fadden (1978) caution against "blaming the victim" when there is a substantial question as to whether a health behavior is under the individual's control. This principle applies to our care of persons with problems relating to overweight control. Our approach must be supportive and patient. It must also be observant.

Since they are on the "front lines," clinicians are key persons who might identify elements of long-term success in overweight control in specific subgroups which may require further study. Nursing health assessments provide an opportune time to discuss health behaviors and inquire about overeating and weight control.

Selected guidelines for the care of persons with overeating/overweight control problems may still be suggested. Assessment should definitely include screening for eating disorders and other suspected psychological pathology which would prompt a referral. It must be ascertained that the individual has discussed the possibility of a physical basis for overeating and/or overweight with a primary physician or nurse practitioner. Existing chronic illnesses and functional abilities, and the relationship

of these with overeating and overweight, should be discussed. Medications taken by the client that may be contributing to the problem need to be identified. The presence of a personal or family history of obesity, diabetes, high blood pressure, heart disease, cancer, and arthritis should be questioned, along with consideration of the client's cholesterol, blood pressure, and smoking status, as they may be factors used to estimate health risks.

The client/patient's report of the problem, how it developed, and how it affects the individual's daily life and aspirations requires discussion, as does previous attempts to control overeating and overweight, including any fluctuations in weight. It may also be useful to question whether the client overeats in response to the preconditions discussed in this study.

A report of typical eating and activity patterns should be garnered, followed by client self-monitoring. The client should be encouraged to record all activity, food intake, and comments on the related context in a health diary. This may promote insight into characteristic patterns which the nurse and client may contract to address.

Health risks implied by assessment data and problems can then be formulated. Interventions will be tailored to problems identified in the assessment. Some basic interventions might be: 1) promotion of realistic weight goals; 2) promotion of stable meal patterns; 3) advisement for avoidance of overly restrictive diets;, 4) suggestions of anticipatory planning, for situations which tend to be associated with overeating. Loro and Orleans' (1981) suggestions for the promotion of the development of some coping abilities may be adapted (coping skills such as problem solving, assertiveness, and communication skills can be taught to the interested patient/client); 5) discussion

of nutritional and activity patterns in relation to requirements and goals are basic; and 6) counselling regarding management of slips and indiscretions in diet is important. This should include advice regarding the "abstinence violation effect," as well as discussion of strategies related to Containing and Compensating, i.e., preventing, limiting, and conservative approaches to redressing imbalances caused by overeating.

It is imperative to buffer and address self-denigration related to these health behaviors, and to emphasize the development of the individual's potential, despite eating and overweight control problems. Consultations with a nutritionist, exercise physiologist, physical therapist, pharmacist, mental health professional, or physician may be deemed necessary.

A nursing approach to an individual with overweight control problems will be informed by continued research and theory development. There is as yet much to be understand about eating patterns in relation to stress and coping abilities. Such knowledge will be integral to promotion of long-term changes in health behavior and the development and integration of the whole person interacting with the environment.

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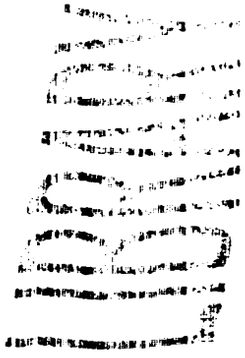

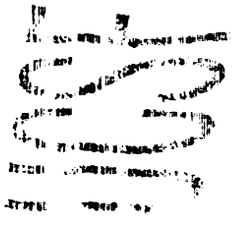

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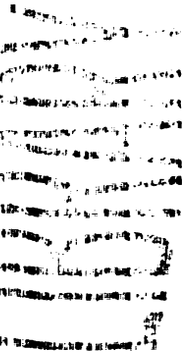

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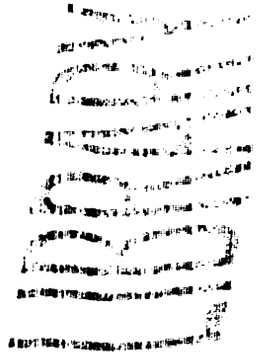

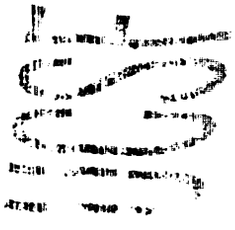

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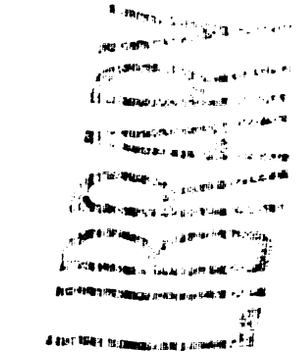
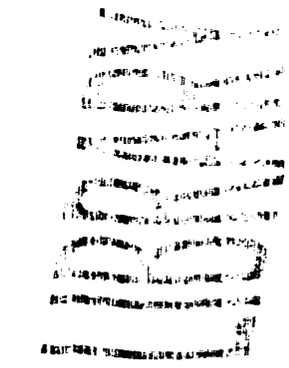
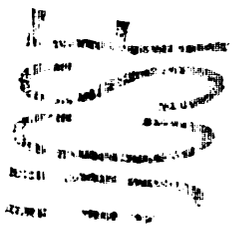


APPENDIX A
VALIDITY AND RELIABILITY OF INSTRUMENTS

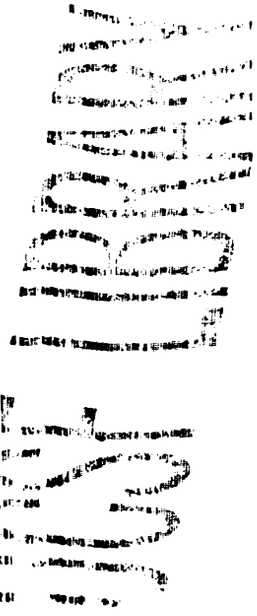
Instrument	Validity	Reliability
Profile of Mood States (POMS)	Concurrent: with Hopkins Symptom Distress Scale (r=0.30-0.86);Construct;Factor analyses on 4 samples of VA and University Hospital men and women (n=150-650), who were inpatients and outpatients of psychiatric services, corroborate 6 POMS factors (McNair, Lorr, & Droppleмann, 1981)	Internal Consistency: K-R20 0.84-0.95 on 6 subscales; when tested on 650 men and 650 women, outpatients at a University Hospital Test-retest: after 6 weeks r=0.45-0.53 for 100 psychiatric outpatients.
Daily Hassles Scale Cumulative Severity	Concurrent: relationship with negative, but not positive affect of Bradburn Morale Scale; sample of community men and women, 26-54 years; Construct: Principal Factors Analyses with oblique rotation confirmed 8 factors. (Delongis, 1985)	Internal Consistency: Alphas on factors = 0.80-0.89; Test-retest: 0.79 on same sample.
Life Events Questionnaire (LEQ)	Concurrent: correlation of negative events score with the Speilberger State-Trait Anxiety Inventory: (r-0.37) for sample of 60 graduate nursing students; same sample: Negative Events Score correlated with POMS factor scores (r=0.33-0.54) and POMS Total Negative Mood Score; This score also moderately correlated with 10 of 12 Brief Symptom Inventory Score (r=0.27-0.51) (Norbeck, 1984)	Test-Retest on 50 female nursing graduate students after 1 week: r=0.78-0.83





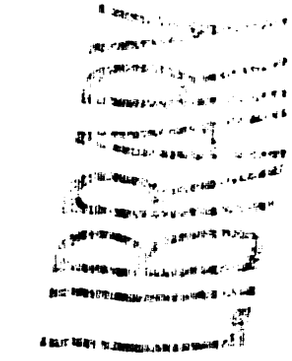
VALIDITY AND RELIABILITY
OF INSTRUMENTS
(continued)

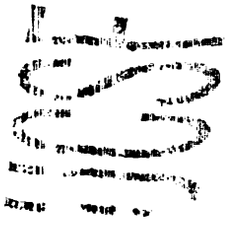
Jalowiec Coping Scale	Construct: Factor Analyses on responses of 141 hypertensive and emergency room patients; principal factor analysis 4 subscales identified; (Jalowiec, Murphy, & Powers, 1984)	Test-retest on 28 subjects after 2 weeks r=0.79 Internal Consistencies of subscales: alpha = 0.55 (support related) and others: 0.73-0.86
Overweight Control Strategies Questionnaire	Content: as described in text	Test-retest on 39 nursing staff after 2 weeks: r=0.82 subscale alphas, from sample of 66 nursing staff: 0.68-0.82; alpha on general frequency score = 0.89; alpha scores from sample of 66 nursing staff; (Solomon, 1990)
Health Diary	Validity for health diaries in general in comparison with data gathered by interview may be superior (Verbrugge, 1980)	



APPENDIX B
WEIGHT STATUS
BY BODY MASS INDEX (BMI)

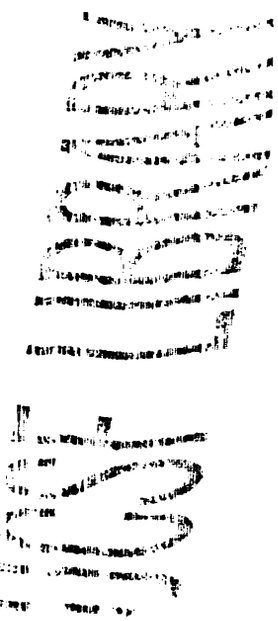
	Frequency	Percent
Underweight		
BMI <	5	6.33
Normal Weight		
BMI 20 - 24	39	49.37
Overweight		
BMI 25 - 29	24	30.38
Obese		
BMI 30 - 40	10	12.65
Severely Obese		
BMI > 40	1	.27





APPENDIX C
DURATION OF REPORTED WEIGHT

	Frequency	Percent
Less than 5 months	19	24.05
6 months to 1 year	28	35.44
1 to 3 years	13	15.19
3 to 6 years	10	13.93
7 to 10 years	0	0
More than 10 years	9	11.39

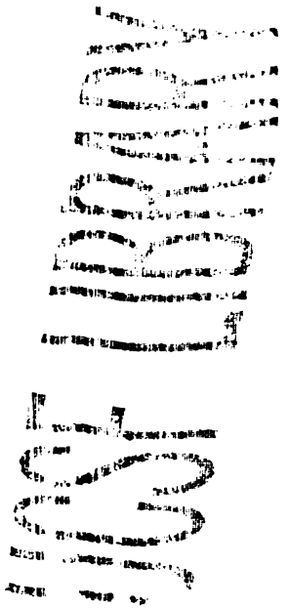


APPENDIX D
FREQUENCY OF PARENTAL OVERWEIGHT

	n	Percent
Neither Parent	21	26.58
One Parent	40	50.63
Both Parents	17	21.52
Adopted/Step parents	1	1.27

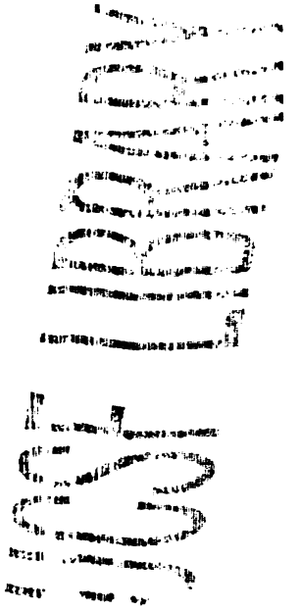
AGE OF ONSET OF OVERWEIGHT

	n	Percent
Subject Not Overweight	17	21.52
Less than 12 Years of Age	16	20.25
12 to 18 Years of Age	13	16.46
After Age 18	33	41.77



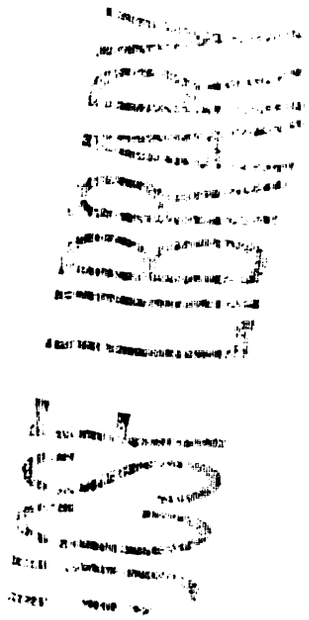
APPENDIX E
FREQUENCY OF REPORTED ANNUAL OVEREATING EPISODES

Episodes	n	Percent
1 - 12	10	12.66
24 - 26	9	11.39
52 - 73	13	16.46
104 - 183	16	36.71
208 - 365	18	22.78



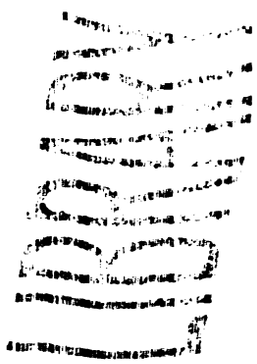
APPENDIX F
AVERAGE PERCENT OF WEEKLY CALORIE REQUIREMENT

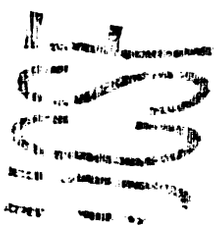
Range of Average Percent of Weekly Calorie Requirement					
1.0	-	25.0	45.84	-	78.82
26.0	-	49.0	80.78	-	92.68
50.0	-	74.0	93.00	-	106.41
75.0	-	100.0	106.88	-	175.38



APPENDIX G
FREQUENCY OF NUMBER OF NUTRITIONAL DEFICIENCIES
(Intake Less than 85 percent of Requirements)

	n	Percent
Number of Deficiencies		
0	4	5.06
1 to 3	12	15.19
4 to 6	23	29.12
7 to 9	15	18.98
10 & above	25	31.65





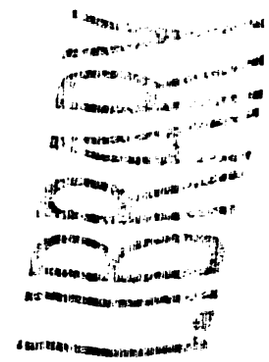
APPENDIX H
FREQUENCY OF TYPES OF REPORTED FORMAL TREATMENT OF OVERWEIGHT

By Type of Treatment

	n	Percent
Weight Watchers	34	43.04
Diet Center	8	10.13
Physician, Clinic	10	12.82
Nutrisystem	7	8.86
Overeaters Anonymous	10	12.66
Self Help Group	2	2.53
Diet Workshop	2	2.53
Jenny Craig	2	2.53
Other	14	17.72

APPENDIX I

CONSENT FORM



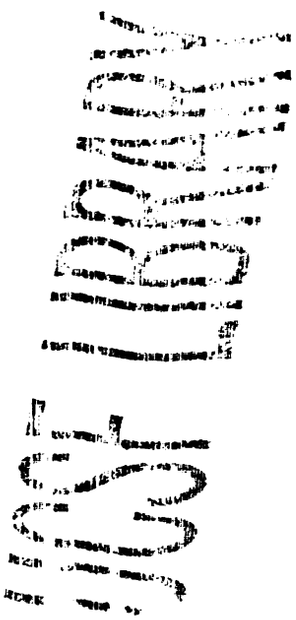
University of California, San Francisco
Consent to be a Research Subject
University of California Committee on Human Research
Approval Number H879-03295-01

Afaf I. Meleis, RN,PhD, Professor in the School of Nursing, UCSF and Margot R. Solomon, RN,MS, Doctoral Student in the School of Nursing, UCSF are doing a study to investigate overeating and coping patterns which I am being asked to participate in.

If I agree to participate in the study, the following will occur:

1. I will be asked to furnish my name and phone number and will be called to arrange a brief meeting at a site which is convenient for me (meeting #1). At this first meeting I will be asked to record my food and exercise activity for one week on provided forms. I may be called by the Co-investigator during the subsequent week to clarify the process of recording this food and exercise data. At this first meeting I will also be asked to arrange a time to be called for a brief telephone interview.
2. I will be called for the telephone interview and will be asked to respond to interview questions about my weight control history and demographic information. During the interview, I will be asked to arrange a time and place which is convenient for me to meet again briefly (meeting #2).
3. During this second meeting, I will be asked to return my food and exercise data and will receive a packet of five questionnaires which I will be asked to complete on my own time. At this second meeting, I will be asked to arrange another brief meeting, in one week, to return the completed questionnaire packet (meeting #3).
4. At the third meeting, I will be asked to return the completed questionnaires.
5. At a later date, I will receive feedback about how my food and exercise records compare to the 1985 Recommended Daily Requirements. I will also receive a list of foods which are high in major nutrients in which my records are deficient and a list of health professionals who can be contacted for further counseling.
6. Meetings, completion of questionnaires, the telephone interview, and feedback on my diet and exercise data will occur on my own, and not University of California time.

Some of the information I am asked to provide may make me uncomfortable, but I am free to decline to answer any questions I don't wish to, or to stop the telephone interview at any time. If I become upset, I will be asked



whether I want to stop the interview or I may take a break from or refuse to complete the questionnaires. I may call the investigators to report that I am upset and they will provide me with possible resources to help me.

Study records will be kept as confidential as possible. No individual identities will be used in any reports or publications resulting from the study. Study information will be coded and kept in locked files at all times. Only study personnel will have access to the files. After study feedback on food and exercise records is completed, all name and phone number information will be destroyed. Remaining data will be coded in terms of subject identification numbers which will not be traceable to subject names.

I will receive information on how my food and exercise records compare to the 1985 RDA, a list of foods high in major nutritional deficiencies my data may indicate, and a list of health professionals who can be contacted for further counseling. There will be no other direct benefit to me from participating in this study. The anticipated benefit of these procedures is a better understanding of overeating patterns.

I am free to choose not to participate in this study. There will be no cost to me as a result of taking part in this study.

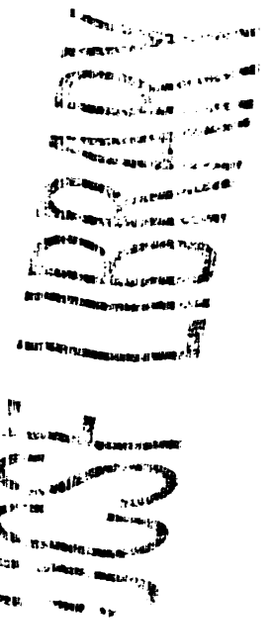
I have talked to Margot Solomon about this study and have had my questions answered. If I have any further questions I may call her at 415-387-3556. If I have any questions or comments about participation in this study, I should first talk with the Co-Investigator. If for some reason I do not wish to do this, I may contact Afaf I. Meleis, Professor and Sponsor at 415-476-1775. If for some reason I do not wish to do this, I may contact the Committee on Human Research which is concerned with protection of volunteers in research projects. I may reach the Committee office between 8AM and 5PM Monday through Friday by calling 415-476-1814 or by writing to the Committee on Human Research, Suite 11, Laurel Heights Campus, Box 0616, University of California, San Francisco, CA 94143. I have been given a copy of this consent form to keep.

PARTICPATION IN RESEARCH IS VOLUNTARY. I am free to decline to be in this study, or to withdraw from it at any point. My decision as to whether or not to participate in this study will have no influence on my present or future status as a patient, student, or employee at UCSF.

Date ---------- ----------

Subject's Signature

Person Obtaining Consent



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For reference

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