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UNIVERSITY OF ALBERTA

THE SOCIAL IMPLICATIONS OF OBESITY

BY

COLLEEN RICHARDSON

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS

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ABSTRACT

The purpose of this study was to determine how the obese segment of the continental U.S. population differs from the normal weight portion in the following areas: self-esteem, happiness, physical self-awareness, income, education and community involvement. The research was guided by a theoretical framework developed from literature in the areas of Symbolic Interactionism and work by Goffman and Elliott on stigma.

Secondary data analyses were conducted on the results of a two wave panel survey. A subsample of 2031 non-institutionalized white Americans was examined using correlational analyses, multiple and stratified regressional analyses, and analyses of covariance.

Limited statistical support was found to support the stigma thesis of obesity set forth by Richardson. Obese individuals differ from their non-obese counterparts in the areas of education, income and physical self-perception. Obesity was found to have more profound effects on the education and income of women than for men.

As a suggestion for further research, I suggest that primary survey research dealing with the issues of discrimination, stigma and obesity be conducted in order to fully capture the prevalence and repercussions of obesity in light of its status as a social stigma.

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CHAPTER 1 - INTRODUCTION

Our society celebrates the image of youth, beauty and a lithe figure. A measure of the glorification of the body is the millions of dollars spent annually on diet aids, diet programs, fitness classes, spa memberships and "low cal" food (Schwartz, 1986). A possible corollary of this celebration of thinness, however, is the social stigma of obesity that is directed at those who do not conform to the ideal American body image. The existence of obesity as a stigma would leave those who are fat to be treated by others as having a physical, mental, emotional, moral or appearance impairment (Allon, 1973). As a consequence, the obese are possibly stereotyped and suffer discrimination because of their size.

Little or nothing is known about the majority of America's obese. For the most part, only those who seek medical help or apply to insurance companies are studied. Research has provided information about the clinically identified obese, but as yet research has provided no information on the characteristics of the "average" fat American.
This study will compare the characteristics of obese Americans with those of non-obese Americans.

Study Purpose

The purpose of this study is to discover how the obese segment of the continental U.S. adult population differ from the normal weight portion on the following variables: self-esteem, happiness, physical self-awareness and self-satisfaction, income, education and community involvement.

This task will be guided by a theoretical framework developed from literature from the area of Symbolic Interactionism, work by Goffman and Elliott on stigma; and empirical studies investigating the social and psychological aspects of obesity.

Why Address Obesity?

The phenomenon of obesity is complex with a myriad of causes and consequences. At best, obesity is a phenomenon that is poorly understood. The majority of the literature treats the condition as an individual problem of clinical concern. Its treatment is normally left to physicians, dieticians, and psychologists.

Obesity has been called the most prevalent disease in America (Vander, 1980). The incidence of overweight and obesity in the United States has been estimated as high as thirty percent or more (Brunch, 1973). In a society that stresses affluence and upward mobility, being overweight is considered a social disgrace (Cahnman, 1968). When an estimated thirty percent of the population is considered to be a "social disgrace", being overweight can no longer be considered just an individual medical problem; it must be recognized as a social issue worthy of investigation.

According to Allon (1975:130) the social meaning of obesity is derived through interactions with others, not from the obese trait alone. Each interaction is unique, thus obesity is redefined during each interaction. The distinction between overweight and obese becomes unclear in interactional situations. From a sociological standpoint, what is important is not the percent of body fat, but the shape of the body and how it is labelled during social interactions. It is recognized that not all overweight people are "equally fat", however the more overweight one is, the more likely they are to face the brunt of the social stigma associated with obesity.

Many authors have found evidence to support our premise that extremely negative views are held by most western societies towards the obese (Allon, 1975; Brunch, 1973; Cahnman, 1968; Dejong, 1980; Maddox, Back and Leiderman, 1968; Mayer, 1968; Monello and Mayer, 1963; Rodin, 1974). Evidence suggests that negative stereotypes are applied to those who are overweight. This evidence, in conjunction with the findings that fat people are approached and treated differently in interactions than "normals" (Larkin, 1979; Canning, 1966; Goodman, Richardson, Dornbusch and Hastorf, 1963; Herman, 1973; Young, Powell, 1985; Karris, 1977) suggests that Americans are prejudicial against the obese. However, the findings are less conclusive as to whether or not that prejudice is translated into overt actions that constitute discrimination.

Discrimination is a complex and multifaceted concept which is difficult to measure (Blalock, 1968). The discrimination against those who bear the stigma of obesity in society cannot be measured directly; all that can be done is to examine how the obese segment of the general population differs from the normal weight portion in attitudes and behavior. This comparison will determine if the general fat portion of the population differs from those who are "normal" weight. If differences do exist between normals and fat people, one possible explanation for those differences is that the stigma of obesity leads to the general discrimination against those who are overweight. (One must keep in mind, however, that other explanations are possible).

Goffman's theory on stigma suggests that to be overweight in America is a social handicap. Research has indicated that the obese are judged and treated more harshly than those of normal weight by all members of society. However, many questions regarding the consequences of being obese in America are still unanswered. Does the overweight portion of the population differ from the normal weight portion as a result of being stigmatized? Does the general obese population suffer because of their size, or is it

only a select portion? Who suffers more by not meeting societal expectation of thinness, men or women? And how do they suffer? Are the costs of obesity primarily psychological or sociological, or are there any measurable consequences at all?

CHAPTER 2 - THEORETICAL FRAMEWORK

Introduction

The purpose of this chapter is to place obesity in a theoretical framework that shows how societal opinions and reactions towards obesity can affect the social and psychological characteristics of an obese person in a "thin" society. The examination of obesity from a Symbolic Interactionist perspective in conjunction with Erving Goffman's insights on stigma, provides such a framework.

The opening section of this chapter provides a brief overview of Symbolic Interactionism, followed by a section that discusses obesity according to the classifications of stigma set out by Goffman (1963), and later by Elliott (1982). The concluding section of this chapter links Symbolic Interactionism with the stigma thesis to explain how and why the obese may differ from the non-obese in our society.

A person who possesses attributes that are stigmatized by a society may experience psychological distress, for the perception of self is mediated by the actions and reactions of others through social interaction (Hayes, 1986:387). The social psychological assumption that a person arrives at a self concept through the process of social interaction has great implications for those who bear the stigma of obesity.

Symbolic Interactionism

Symbolic Interactionism, as developed by George Herbert Mead (1934) Charles Horton Cooley (1902) and Erving Goffman (1963), provides a theoretical framework from which to examine the effect obesity has on the individual in North American society. In addition,

Gregory Stone's (1961) essay on appearance highlights the affinity between the philosophical foundations of symbolic interactionism and Goffman's essays.

The central concept of Symbolic Interactionism is the self. The self is defined as that which can be an object to itself. Mead's basic premise is that the standpoint and responses of others are used by the individual to evaluate and attach meaning to himself. The self then, is a social construct that emerges from the process of social interaction.

According to Craib (1984), the three basic assumptions of Symbolic Interactionism are:

1. Man acts towards things on the basis of the meanings those things hold for him.
2. Meanings are a product of social interaction.
3. The meanings are modified and handled through an interpretive process that is used by each individual in dealing with the signs each encounter.

Man lives in a world that is both physical and symbolic. The physical signs he encounters have symbolic value. The symbols act as stimuli that have a learned meaning and value for individuals. Significant symbols are those whose meaning are the same for both the one who makes the gesture or presents the symbols and the other to whom they are addressed. They provide a basis for adjusting activity before the behaviour has been initiated.

We view ourselves through the actions and reactions of others towards us, "Bring man into society, and he is immediately provided with a mirror which he lacked before. This is the only looking glass by which we can in some measure, with the eyes of other people, scrutinize the propriety of our own conduct". First expressed by Adam Smith in 1759, this imagery was popularized through Symbolic Interactionism by Cooley in 1904. Cooley

described the self as a looking glass ; a self that cannot exist outside the gaze of others. It is man's appearance in the mirror of others' responses that is not only the basis of personal esteem but is constitutive of the self.

The majority of investigations in Symbolic Interactionism have focused on discourse, in their discussions of how the self is established, maintained and altered. In his essay on the appearance and the self, Gregory Stone (1962) broadens the perspective of Symbolic Interactionism by focusing on a dimension of communication that had received relatively little attention - appearance. Symbolic Interactionism involves an interpretation of social transaction, and there are at least two components to any interaction, appearance and discourse. Stone points out that appearance is at least as important as discourse in any interaction and is of major importance in every stage in the development and maintenance of the self.

> It sets the stage for, permits, sustains and delimits the possibilities of discourse by underwriting the possibilities of meaningful discourse.
> (Gregory Stone, 1962:590)

Appearance acts as a nonverbal symbol that establishes the identification of the participants and has the power to direct or subvert the possibilities of any future interaction. As Veblen (1934) has suggested," we may escape our discursive obligations but not our own appearances".

People receive first impressions and pass judgements on others according to the normative values of the social group to which they belong. The opinions of others about an individual are reflected in their words and actions. Favorable responses and rewards are dispensed for conforming to what is normative or desirable; unfavorable responses and punishments stem from nonconformity. That is why appearance is crucial in most

forms of social interaction. Individuals are often viewed and evaluated on the basis of physical appearance prior to any actual interaction, be that evaluation explicit or implicit.

There are one of two ways that the obese could view themselves; they may have a negative self image, or as Goffman's quote suggests, the obese individual may deny his stigma and employ coping techniques to protect himself from the negative beliefs and responses he perceives as coming from others.

When an individual does not meet societal expectations or norms there is a direct effect in the psychology of the individual. The society, the individual psyche and the physical body are intimately connected. We judge ourselves on the basis of what others see in us, and the first thing they see in us is our body. A social psychological approach to the body and its image implicitly involves conception. We judge ourselves as much on what we conceive ourselves to be, if not more than on what we actually are. Therefore, if the obese internalize the negative attributes associated with the stigma of obesity they will have a negative body image, while if they employ coping techniques such as denial they are likely not to view themselves more harshly than if they were a normal weight individual.

Some attributes, such as obesity, are more heavily stigmatized in some social stratas than others; in other words, the impact of obesity on and individual's self perception is mediated by the social environment in which he finds himself. The presence of a strong support network may also intervene in the process of self appraisal by the obese. If an obese person is situated in a social class or group where obesity is viewed negatively, the presence of a strong supportive social network may minimize some of the adverse social effects of being fat.

Stigma

There is nothing inherently distressing about obesity unless it is labelled so by a society. Any quality, characteristic or attribute that makes the bearer different from others in a society in an undesirable way is a stigma. Obesity is one such attribute which has been stigmatized and negatively stereotyped in contemporary North American society.

> A stigma is some deeply discrediting attribute , which signifies that the individual possessing it is not quite human. Disconcerting to the stigmatized person is the obtrusion of the stigma upon the attention of others; for by turning them from him, and nullifying the claim that his other attributes have upon them from the stigma removes its possessors from the normal course of self sustaining interaction.
>
> (Goffman, 1963:3)

Goffman (1963) was the first to attempt the development of a theoretic framework regarding stigmas that went beyond the study of any single substantive area (Bynum et al. 1984:95).

In his book *Stigma; Notes on the Management of Spoiled Identity*, Goffman subdivides stigmas into three categories; abominations of the body, blemishes of individual characteristics and tribal stigmas of race, nation and religion. Visible stigmas that can not be hidden can be the most devastating for the individual (Goffman, 1963:4).

> Stigmas that are always visible can spoil the individual's social identity: they have the effect if cutting him off from society and from himself so he stands discredited person facing an unaccepting world.
>
> (Goffman, 1963:19)

Goffman did not address the stigma of obesity because his sources, which are chiefly autobiographical, did not include testimony from obese people (Cahnman, 1968:294). However, obesity does fit Goffman's criteria for a stigma, for obesity could be considered both an abomination of the body and a moral stigma.

The obese are unable to hide their stigma, unlike persons with other forms of physical stigmas, such as deafness or disfigurements, or those who possess stigmatized character flaws, such as a criminal record. The fat person displays his abomination for society to see at all times, and is assumed responsible for his stigma (Dejong, 1980)(presumably through lack of self control and will power). As a result, the negative effect of his stigma is magnified. He is not only discriminated against because of his size, he is discriminated against because he is viewed as bad or morally responsible for his appearance.

Goffman's theory of stigma proposes that the person with a stigma is considered "not quite human". This view is manifested in the assumption that society in general exercises a variety of discriminations against the stigmatized. Man constructs a stigma theory, or an ideology to explain the "inferiority" of the stigmatized person in order to account for the danger he represents to the flow of personal interactions. He rationalizes his animosity based on the features of the stigmatized that sets him or her apart. This emphasis on the stigma leads to the stereotyping of the individual through the attachment of a wide range of imperfections which are based on the original one (Goffman, 1963:5).

Thus, the stigmatization of fat persons involves the denial of those individuals as legitimate persons by society (Elliott, 1981), and as suggested by Cahnman (1968:283-292) results in their rejection and disgrace. This rejection and disgrace is a result of the obesity, which is considered both a physical deformity and a morally reprehensible state.

To lose one's legitimacy as a social person, and to face discrimination by others as a result of stigma disadvantages the stigmatized individual. The situation is further aggravated by the fact that the stigmatized person tends to hold the same belief about his identity as does the rest of society (Goffman, 1963:7). The standards the stigmatized

person incorporates from the wider society lead him to be aware to what others see as his failings, inevitably causing him to agree that he does fall short of societal expectations (Goffman, 1963:7).

Gregory Elliott (1982) expanded Goffman's basic theory of stigmatization by explaining that the disruptive impact of stigma depends on its classification along several dimensions: visibility, pervasiveness, clarity, centrality, relevance, salience and responsibility for a question and the removability (Elliott, 1982:275). When Elliott's dimensions of stigma are applied to obesity it is apparent that differential treatment and attitudes towards the obese are a result of the severity of the stigma others attach to their size. Obesity is a highly visible stigma and as a result may disqualify the overweight person before the commencement of an interaction. Obesity is pervasive in that stigmatization of obesity occurs in almost all social situations. Obesity also has a high degree of clarity. The clarity exists because there is a consensus within North American society that obesity as an undesirable trait.

Obesity has attained the rank of master status, and as a result, is highly central. Studies by Homant and Kennedy (1982) have shown the attribute of obesity tends to overshadow all others when judgements are being made in the character and abilities of the overweight individual. In the United States a fat person's identification is with fatness; as a status fatness comes before religion, race, sexual preference, income or gender. Only in a society intent against fatness can overweight become so distinctive and so negative a stigma (Homant and Kennedy, 1982).

Obesity is a highly salient stigma, where the bearer is assumed responsible for both the acquisition and removal of his condition (Dejong, 1980).

> ...Contrary to those that are blind, one legged, paraplegic or dark pigmented, the obese are presumed to hold their fate in their own hands; if they were only a little less greedy or lazy or yielding to impulse or oblivious to advice, they would restrict excessive food intake, resort to strenuous exercise, and as a consequence of such deliberate action they would reduce. Actually, the moral factor which is thus introduced aggravates the one. While blindness is considered a misfortune, obesity is branded a defect.
>
> (Cahnman, 1968:294)

Summary

From a Symbolic Interactionist perspective, where socialization and the emergence and maintenance of the self is seen as a continuous process of negotiable interactions (Gecas, 1981), I argue that the obese are likely to experience different forms of interaction than normal weight persons because of their stigma. The differences in the form of interactions experienced by the obese are likely to result in social disadvantage. Not only will society judge them harshly, but so will the obese themselves. If my argument is correct, not only must the obese cope with the discriminatory actions of society; they must deal with the negative self-fulfilling prophesy that socialization has encouraged them to adopt.

CHAPTER 3 - LITERATURE REVIEW

Introduction

This chapter summarizes previous empirical work done in the sociology of obesity. The opening section presents empirical evidence that suggests obesity is viewed negatively - or that it is stigmatized by most people in Western societies. The chapter then goes on to present demographic differences and evidence for discrimination against the obese.

Social research in the area of obesity and stigmatization suggest that the obese are viewed and treated differently than normal weight individuals from an early age in North America. Although the research suggests differences do occur between the obese and 'normals' in North America, no research has examined a national sample in an attempt to measure differences between the obese and the normal weight population.

A number of studies, based on limited sample sizes, have concluded that extremely negative views are held by most people in Western societies towards the obese (Allon, 1975; Brunch, 1973; Cahnman, 1968; DeJong, 1980; Maddox, Bach, and Liederman, 1968; Lerner and Gilbert, 1969; Lerner and Schroder, 1971; Mayer, 1968; Monello and Mayer, 1963; Rodin, 1981; Stunkard, 1976, 1980; Richardson, 1961, 1970; Staffieri, 1967, 1972). Studies involving children from as young as age three have demonstrated that negative stereotyping, aversions and differential space schemata are used towards chubby peers (Lerner and Gilbert, 1969; Hesse, 1980; Lerner and Schroder 1971; Staffeiri, 1967, 1972; Richardson, 1961, 1963; Goodman, 1970; Monello, 1963; Stunkard, 1972; Worsley, 1979, 1983).

The negative attitudes and aversion to obesity established in childhood have been found to be as prevalent in adults. Studies conducted by Richardson (1961); Goodman, Dornbusch and Hastorf (1963); Maddox et al. (1968); Goodman et al. (1963); Hesse (1980); on samples of health-care professionals and teachers found that obese figures were ranked least likable and desirable when compared to other figures with visible stigmas such as facial disfigurements or wheelchair confinement.

The following studies suggest that the stigma of obesity reaches beyond the negative attitudes held by the general population towards the obese to affect the treatment and life chances of the obese. Obesity has been found to be related to discrimination in the academic, domestic and work environments.

Strong biases in college admission for both obese males and females have been found by Canning and Mayer (1960). Karris (1977) suggested that landlords discriminated against the obese; their willingness to rent was found to be dependent on the weight of the renter. Larkin and Pines (1976) found obese individuals were rated more negatively than normal or underweight individuals on job applications and were less likely to be hired than their normal weight counterparts, even when they were judged equally competent. On the job applications the obese were viewed less competent, productive and industrious than their thinner counterparts and were seen to be significantly more disorganized, indecisive, inactive and less successful.

Similarly, a 1976 employer survey (Roe and Eikwart, 1976), found that 16% of employers would not hire obese women and almost half considered obesity to be medical grounds for not hiring an applicant. Although relatively few of the employers (15.9%) indicated obesity was an absolute contradiction for hiring, almost half reported they were unwilling to employ obese women under a variety of circumstances.

This unwillingness to hire or promote fat people has been reflected in studies examining wages and obesity (Louderback, 1970; Drenick, 1973). These studies demonstrated a correlation between weight and wage earnings. Those who were fat were less likely to be in executive salary positions where the employee is projecting a "company image" Likewise, decreases in weight were associated with employment and salary increases. As in the experimental studies that examined how health care professionals and teachers label obese children (Richardson, 1961; Goodman, Dornbusch and Hastorf, 1963, Maddox et al., 1968; Goodman et al., 1963; Hesse, 1980), these results also suggest that labeling is a response to obesity.

The relationship between social factors and obesity has been documented from the early 1960's on. The first studies to investigate the association between social factors and obesity and overweight (Goldblatt et al., 1965; Moore et al., 1962) were conducted in Midtown Manhattan. These studies found that social class was related to overweight, with adults in the lower social classes more likely to be overweight than those in upper social classes. This relationship was especially strong for women. Obesity was six times more common in women of the lowest socio-economic class as compared to women of the highest class. Similar results were found for men but not to the same extent. Other studies conducted in London England and twelve states in the United States corroborated these results (Burnight and Marsden, 1973; Garn and Clark, 1976; Kohrs et al. , 1977, Ramond and Rim, 1974; Silverstone et al., 1969; Stunkard et al., 1972; Hastrom and Noppa, 1980). These findings supported the earlier work by Moore, Stunkard and Srole (1962); which found that social factors play an important role in human obesity However, as Hollstrom and Noppa (1980) have pointed out, the association of obesity and social class is complex. An explanation for the apparent relationship is that the life situations for those of low socioeconomic status exposes them to psychological stressors that would increase the risk of obesity; or that fatness is more acceptable in the working class The

question of how to order obesity and social class causally has yet to be addressed in research regarding the sociology of obesity.

Stigmatization of any kind involves rejection and disgrace. Several researchers have shown people do react negatively to overweightness. Those who are overweight may feel full of self-hatred because they are discriminated against. When the obese feel they merit such discrimination, they accept the treatment as just (Cahnman, 1969). The prophesy becomes self fulfilling and it makes certain that an overweight person perceives himself in a way as indicated by American social values.

The evidence regarding the relationship between relative weight and psychological well-being is contradictory. Work by Weinberg et al. (1960) involving six different psychological tests found no statistical differences between the scores of 18 obese and non-obese men. Friedman (1959) found no appreciable differences between 26 obese college women, 26 normal weight women and 26 underweight college women, except that the obese and underweight women were less objective and more hypersensitive than the normal weight women. Similarly, Shipman (1963) found no differences between obese patients and normal weight controls when age, sex, socioeconomic and marital status were matched. The small sample sizes of these studies decrease the power of the tests used and therefore may contribute to the statistically insignificant findings.

On the other hand, research conducted by Shipman and Heath (1966) using the Minnesota Multiphesic Personality Inventory and the Edward's Personal Preference Schedule, found that 35 overweight women who had either volunteered for a research diet or had applied for psychotherapeutic help reported inner struggles and tension while failing to report any social anxiety. Moore (1962) compared the mental health of 334

obese men and women who had volunteered to attend an obesity clinic, with the mental health of 1042 normal weight individuals. He found the obese had more pathological scores than the normals in 8 out of 9 measures. The differences achieved statistical significance in the measures of immaturity, rigidity and suspiciousness. (Unfortunately, these characteristics were not measured in the data set that I will use in this thesis.)

A person's self regard is largely reflected in what others think of him. Those whose appearance is regarded as unattractive, such as the obese, tend to have lower self regard and may strive to change their appearance (Hibscher et al., 1977:339). A study of high school aged girls in New England, (Monello and Mayer, 1963) found that obese girls showed characteristics similar to the traits of ethnic and racial minority groups due to their status as victims of prejudice. The girls showed personality characteristics such as passivity, obsessive concern with self image, expectation of rejection, and progressive withdrawal. They also accepted the dominant negative values toward obesity prevalent in society. Research involving female college freshmen (Alexander, 1968) found that endomorphs were significantly less accepting of themselves than were ectomorphs or mesomorphs. Work by Mendelson and White (1982) found body esteem to be significantly correlated with body weight among children; self-esteem and relative weight were not correlated.

It appears that the length and timing of exposure of the individual to the negative sociocultural attitudes plays a large role in determining how the obese individual views himself. Those who reached obesity during their childhood or adolescent years appear to be more adversely affected by their size than those who reach obesity in their adult years. A 1961 study by Stunkard and Mendelson found that those with adult onset obesity did not approve of their overweight; at the same time, they did not hate their bodies or themselves because of it. Studies by Aschwell, Etchell (1975) on body image and attitudes

towards weight found that the overweight were aware of their weight class; as well greater awareness was found in overweight women than in overweight men. In contrast, Tarini (1962) found many obese adults denied their fatness. Stunkard et al. (1961, 1967) found the majority of the adults who viewed themselves as grotesque or ugly reached obesity during their childhood or adolescence. These individuals also tended to blame their weights for far-removed troubles, to divide the world into fat and nonfat, and to disregard factors such as talent, intelligence, and wealth in favor or appearance in judging others.

Summary

The studies reviewed above suggest that the obese suffer in our society because of their weight. The obese as children are ignored and judged disfavourably; as a result, they are likely to develop distorted body images and low self esteem. For those who are overweight during their adolescent years there is a potential for the development of heightened sensitivity toward their size. This increased awareness contributes to the tendency of these individuals towards passivity and isolation and the internalization of feelings of victimization and prejudice (Monello, 1963). And worse yet they feel their discrimination (real or imaginary) is justified (Cahnman, 1968). The adult obese appear to be held back in their occupational careers due to discrimination in both hiring and promotions, and may suffer in their personal life as well, due to feelings of low self esteem and self-worth. As well, the reoccurring links between low socioeconomic status and overweightness cannot be ignored.

The results obtained in the studies reviewed suggest that obesity is a social problem, and that the effects of obesity are far reaching. Unfortunately, the majority of the sociological studies on obesity have a tendency to draw generalized conclusions beyond the evidence at hand. Sociological inquiries into obesity need to direct their attentions towards large

scale studies that seek to identify relationships between obesity and other social and psychological factors rather than to erroneously draw general causal relationships from small samples whose population is either not defined or limited in scope.

CHAPTER 4 - RESEARCH PROBLEM, HYPOTHESES AND METHODOLOGY

Introduction

In the first chapter, obesity was discussed as being a problem of such proportion that it deserved to be addressed as an issue of sociological concern. The second chapter discussed obesity in a theoretical framework which clarified how societal opinions and reactions towards obesity can affect the social and psychological well-being of an individual. The third chapter reviewed the empirical investigations. The review suggests that the obese are treated differently than and experience different life chances than normal weight individuals.

In the present chapter I will state the hypotheses to be tested, describe the data set used in this study, include a discussion of its strengths and weaknesses and provide a brief description of the statistical methods used. The final sections of this chapter contain discussions of the sampling methodology, the operationalization of and descriptive summary of the sample characteristics relevant to this study.

Research Problem

Previous empirical research on small samples have suggested that the obese differ from normal weight individuals in self esteem, happiness, physical self- awareness, socioeconomic status, extent of social interaction and activity patterns. This study will address these issues using a large representative American sample to investigate whether

the typical obese person differs from the typical normal weight person, on a number of characteristics as outlined in under study purpose in Chapter 1.

Hypotheses

Within the confines of the available data and based on the theoretical framework and the empirical research previously cited, the following hypotheses represent the expected outcomes of this study.

1. Obesity will be negatively correlated with education.
2. Obesity will be negatively correlated with income.
3. Obese individuals will be less satisfied with their health and weight than normal weight individuals.
4. Obese people will be less involved in community activities than normal weight people.
5. Obese individuals will have lower levels of psychological well-being than normal weight people.
6. Obese individuals will have smaller social networks than normal weight individuals and report fewer social contacts.
7. The impact of obesity will be greater for women than men.

In addition, age will be used as a control variable in all hypotheses, education will be controlled for in hypotheses 2 and 6, and income in hypotheses 3 through 6. Since there are no theoretical or empirical basis for expecting interaction effects between obesity and the dependent variables other than sex, no formal hypotheses are presented.

Data Source

This study uses part of the National Survey of Personal Health Practices and Consequences [U.S.], 1979 -1980. The initial intention of the survey was to provide data that would measure the extent and distribution in the population of positive personal health practises, their stability over time, and their relationship to morbidity and mortality. The survey includes questions on diet, exercise, weight status, perceived health status, behaviour due to illness, and energy level, work status, participation in social groups and religious services, enjoyment of free time, number and closeness of friends and relatives, general psychological well-being, and sociodemographic information such as age, sex, marital status, education, race and family income.

Data Collection

A two wave panel survey using a three-stage stratified cluster design was used to obtain a sample from the population universe. The population universe designated for this study included all persons aged twenty to sixty-four, who, at the time of the study, were non-institutionalized American citizens residing in dwellings that possessed a telephone.

From this population two waves of interviewing were conducted; one in the spring of 1979, and the second a year later in the spring of 1980. The first wave was comprised of 3,025 respondents and the second wave was comprised of 2,436 respondents (80.5% of the wave one respondents).

The information gathered in both waves of the survey were collected in telephone interviews averaging one half hour in length. This research will use only those respondents who are white and participated in both waves of the study. This study will

focus on wave one data, and is limited to those respondents who completed both waves of the survey. Analyses were restricted to those respondents who participated in both waves of the study in order to estimate the stability (test - retest) of the measures.

Justification of the Research Design

The selection of the National Survey of Personal Health Practises and Consequences [U.S.], 1979-1980 for the investigation of the social-psychological impact of obesity in America can be justified for a number of reasons, ranging from cost to the appropriateness of the survey content. The choice to conduct secondary data analysis originally stemmed from the nature of the research question in conjunction with the practicality of obtaining a representative sample.

The focus of this study is to determine if there are any differences between those who are obese and those who are normal weight in the general American population. In order to obtain an unbiased sample of both normal and obese respondents that is large enough to be representative of the general American population, research and data collection would be extremely costly. The fundamental problem of how to obtain an adequate sample for research of this nature lead to a methodological compromise and a narrowing and modification in the scope and nature of the research design. The use of secondary data analysis was chosen over original research because it allows for a satisfactory and affordable research design.

The exploratory nature of the research is well suited to secondary data analysis. No previous research has attempted to explore and measure the differences between the general, normal and overweight American population. An existing data set with a large, randomly drawn national sample, is ideal for this type of research.

A beneficial aspect of this data set is that it is a panel study. The use of panel data allows for a measure of stability. Stability refers to the notion that a reliable measure should not change from one application to the next, assuming the concept being measured has not changed[1] (Monte, Sullivan, Dejong, 1986:99).

People's responses to particular questions may vary from one time to another. The respondent may not be certain of how they feel at one point in time; they may be distracted; they may change their mind and so on. These factors can contribute to errors in measurement and depress the reliability of the items measured (Bohrstedt, 1983:79)[2]. A panel study allows for reliability testing because a correlation of measures can be made across two points in time, and therefore, we can more confidently accept the research findings.

Although there are many benefits of using secondary data analysis for research of an exploratory nature there are also some major constraints. The choice to use an existing data set limits the hypotheses that can be tested, and as well, the researcher must compromise on the operationalization and measurement of certain concepts. As a result, the scope and specificity of the hypotheses tested in this study will be limited by the nature of the questions asked in the National Survey of Personal Health Practises and Consequences.

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1. Since only one year separates wave one and wave two of the study, we can assume that the change in the variables, particularly the measures of obesity, are due to measurement error.
2. It is recognized that the changes in responses to particular questions may actually reflect real change rather than measurement error.

Analysis Of Data

Analysis of the data was conducted using the MIDAS statistical package. Initial analyses consisted of correlations, cross tabulations, chi-squares and one way analysis of variance. The final analysis used multiple and polynomial regression techniques.

In all analyses weight is treated as being causally prior to all variables, except age and sex. The decision to treat weight as causally prior in this study is based on the results of previous research conducted by Stunkard and Monello (1961); Richardson (1961); Goodman, Dornbusch and Hastorf (1963); Maddox et al. (1968); Goodman et al. (1963); Hesse (1980). Stunkard and Monello(1961) found that the development of obesity in childhood and adolescence resulted in more negative effects than for those with adult onset obesity. While the others, through experimental studies, found that obese figures of children were ranked least desirable and likable when compared to other child figures with visible stigmas by health care professionals and teachers.

Operationalization of Concepts

In this section the operationalization of concepts and selection of variables used in this study are presented along with a summary of the various frequency distributions. The first portion of this section presents the study's key concepts. A brief description of the sample will follow.

A list of the variables available from the data set are located in Appendix B. Variables are presented in tables according to the concepts they are intended to measure.

Sample Description and Frequency Distributions

Analysis was conducted on a sample of 2121 cases; all of whom were white and participated in both the 1979 and 1980 wave of the study[3]. Appendix C presents sample characteristics for phase 1 and 2 of the survey. The sample can be described as consisting of white Americans, the majority:

- being female (60.8%);
- being married (70% of sample);
- earning $10,000 to $25,000 (approximately 52% of sample);
- having a grade 12 or better education (81.8%);
- between the ages of 25 and 40 (41.5%); and
- being overweight (50% of the sample being overweight and 11.5% being obese).

Obesity

Obesity is properly defined as an excess of relative body fat content. A proportion of fatty tissue to total body weight that exceeds 20 - 25% in men and 25 - 28% in women is considered clinically obese (Hafen, 1975: 29). Less stringent definitions of obesity indicate that obesity occurs somewhere between 20 and 30% beyond what is considered the ideal body weight for the individual.

There are two methods of measuring obesity in the field setting; relative weight and, ratios comparing weight to height and estimates of body fat. Relative weight involves the comparison of a person's weight, height and body frame to standards compiled from large

3. Only white respondents were used in this study to avoid the need to control for the confounding effects of the stigma of race on the stigma of obesity.

samples of a population. (The most commonly used table of standards have been compiled by the Metropolitan Life Insurance Company of New York). In these tables obesity is defined as a body weight being at least 10% above the desirable or ideal weight and the cut off point for excessive obesity is set at 20 % in excess of the ideal weight for a particular height and body frame. Objections to the use of relative weight indices are that comparisons are being made with a sample of insurance-purchasing individuals, which may not be representative of the total population (Adadeush, 1973; Richards and de Casseres, 1973); and that the relative weight standards lack objective measurements of body frame size (DHSS/MRC, 1976).

Ratios comparing height to weight may take a number of forms. Quetelet's formula is a convenient and reliable indicator of obesity; it is equal to the weight (kg) divided by the square of the height (m) (Florey, 1970; Goulbert and Medalie, 1974; Garrow and Webster, 1985).

Since the relative weight values of the Metropolitan Life Insurance tables correspond to Quetelet's index over the entire height range, the same cut off points between obesity and non-obesity are used (DHSS/MRS,1976).

In this study both the Metropolitan Life Insurance categories and Quetelet's index will be used to measure obesity. The Metropolitan Life categories will be used as a categorical variable and Quetelet's index (kg/m^2) will be used as a continuous variable. Both measures of obesity are stable measures; the quetelet variable has a reliability coefficient of .9087 and the metlife variable has a reliability coefficient of .8854.

Appendix D shows the sample's weight distribution for time 1 and time 2 of the study. Approximately 20% of the sample is underweight, 25% are ideal weight, 44% are overweight and 11% are obese.

Education

Respondents were asked their education only in the first wave of interviews; as a result no measure of the stability for the variable is available. Educational status was operationalized through an education variable composed of the following categories with the respective sample proportions.

Category	% of Sample
no education	0.0%
grade 1 to 4	0.6%
grade 5 to 6	0.9%
grade 7 to 8	4.3%
grade 9 to 11	12.5%
grade 12	39.0%
13 to 15 years education	23.1%
16 or more years	19.7%

The educational range of the sample was between 1 to 4 years of education to 16 or more years of education with a mean of 12.7 years and a standard deviation of 2.37. Approximately 12% of the sample did not finish grade 12; 39% have 12 years of education; 23% have 13 to 15 years of education and 20% have 16 years or more of formal education.

Socioeconomic Status

The best measures of overall socioeconomic status are those which incorporate, educational, occupational and economic measures of status (Hunter, 1986:110). Unfortunately the data set under analysis has no questions regarding the nature of the respondent's occupation. As a result, only educational status and economic status, as indicated by family income, will be examined in relation to obesity.

Economic Status

Economic status is related to the amount of inherited wealth and individual receives, the income derived from earned wealth and finally, from public relief and nonreportable income (Pineo and Porter, 1967). Greater economic status is awarded in the basis of total income; the greater the income the greater the status it brings with it, except that each additional dollar seems to add a smaller increment in status than the one before (Hamblin, 1971, 1974). For the purpose of this study, economic status will be measured using total family income. The square root of income will not be used unless empirically warranted.

The values for the categorical income variables were employed in initial descriptive analysis and later converted to the following dollar values for regression analysis.

Category	Converted Dollar Values
less than $5,000	$5,000
$5,000 - $9,999	$10,000
$10,000 - $14,999	$15,000
$15,000 - $24,999	$20,000
$25,000 or greater	$25,000

According to this conversion, the average family income at time 1 for this sample was $18,536 for men and $17,258 for women. The stability of the measure between time one and time two is very high at r = .7462.

Satisfaction with Weight

Satisfaction with one's weight was operationalized using a variable that asked whether the individual considered himself or herself overweight, underweight or average weight. Those who saw themselves as average are considered satisfied with their weight, while those considering themselves over or underweight are interpreted as being unsatisfied with their weight. No significant difference in the sample's weight satisfaction was found between wave 1 and 2 of the survey.

Wave 1 results indicated that 50.3% of the samples were satisfied with their weight while 49.7% were unsatisfied. Similarly, in wave 2, 49.8% of the samples were satisfied with their weight while 50.2% were not.

Measures of stability for subjective variables are normally lower than for objective variables; therefore it is not surprising to find the stability of weight satisfaction is less than that of the actual weight variables at r = .6131. Although the reliability is low relative to the measure of weight, it is high for a single-item measure of a subjective variable.

Satisfaction with Health

For the purpose of this study, the level of health satisfaction is considered to result from an individual's perception of their own health. The higher an individual rates their health, the greater their satisfaction with health is believed to be.

A unidimensional scale was constructed from four variables to measure overall health perception and subsequent satisfaction. The four measures used in the scale construction are as follows:

Var 9	Would you say your health is excellent, good, fair, or poor?
Var 63	In general, how satisfied are you with your overall condition? (4 point scale where 1 indicates not at all satisfied and 4 indicates very satisfied)
Var 67	Compared to others your age, would you say your health is: (4 point scale where 1 indicates poor and 4 indicates excellent)
Var 68	Compared to other people your age would you say you have: (4 point scale where 1 indicates much less energy and 4 indicates much more energy)

Based on the health perception scale, the frequency distributions outlined in Appendix C indicate that 8.8% of the people surveyed perceive their overall health to be fair or poor and 91.2% classify themselves as having an overall health rating of good or excellent.

The reliability of the health scale was determined using Cronbach's alpha; a measure of internal consistency based on the correlations between items. The reliability of the health scale is quite high at .752. In addition to testing the reliability of the scale, the construct validity of the health perception scale components were tested against the measures of psychological well-being. The correlations between these two sets of variables were all in the predicted direction, statistically significant and roughly the same size. As a result, this scale has been judged to be both valid and reliable. The correlation matrix of the components of the health perception scale and the measures of psychological well-being are located in appendix E.

Community Involvement

The level of an individual's community involvement was investigated using four dichotomous variables. These variables asked whether or not an individual had participated in a community group over the last three months. The nature of these questions are unable to directly address the extent to which an individual is involved in their community, but rather whether or not they are involved and how diverse their involvement is.

Respondents were asked about their involvement in the following four types of community groups: church, child, community service and social or sporting groups. Between 23% and 33% of the sample surveyed indicated they participated in one of these community

groups over the past three months. Social and sporting groups had the highest level of involvement at 33.2% while the lowest level of participation occurred among children oriented community groups at 23.6%.

The stability of the community involvement measures , as indicated by test-retest reliability range between .244 (involvement with social groups) to .541 (involvement with church groups). These scores can be considered very low in the cases of social and community group involvement and moderate in the cases of church and children's groups involvement. Not only do these measures correlate poorly across time, they do not correlate with anything, which indicates that they have low construct validity.

Psychological Well-Being

The many dimensions of psychological well-being make it a difficult concept to measure in its entirety. In this study, psychological well-being is operationalized using four variables that comprise the HAY scale (how are you), and variables that rate the individuals level of emotional problems, happiness and marital happiness.

The HAY scale is a unidimensional scale constructed from four variables that when combined, measure overall well-being. The first items on the scale measure happiness while the second two items look at the antithesis; unhappiness or downheartedness. the negative items were reflected so that a high score represents "high" well-being on all items. The four variables used in the scale construction are as follows:

Var 152 How often in the past month have you felt cheerful and light-hearted? (4 point scale where 1 represents never and 4 represents very often)

Var 153 How often in the past month have you felt loved and wanted? (4 point scale where 1 represents never and 4 represents very often)

Var 154 How often in the past month have you felt down hearted or blue? (4 point scale where 1 represents never and 4 represents very often)

Var 155 How often in the past month have you felt lonely? (4 point scale where 1 represents never and 4 represents very often)

The second component of psychological well-being investigates the level of an individual's emotional problems. The variable EPS (emotional problems scale) divides individuals into 5 categories, ranging from no emotional problems to severe emotional problems and have sought professional help for those problems. Wave one results indicate that 69.1% of the sample falls in the top one-third of the HAY scale, while 5.2% fall into the bottom one-third of the scale. According to the Emotional problem scale 51.6% of the sample has no emotional problems and 3.4% have severe emotional problems and have sought professional help for their problems.

The stability of the individual measures across time that are used in the scale is quite low; r ranges between .3242 and .4308, while the stability of the HAY scale is .5307. The reliability, or measure of equivalence , of the HAY scale items at time one of the survey is moderate at .674.

The construct validity of the HAY scale was examined using a correlation matrix containing the individual components of the HAY scale and the health perception scale (see appendix E). The scale was found to be constructed of valid indicators of Psychological well-being .

All correlations were in the predicted direction, statistically significant and roughly the same size.

Social Network

The size of an individuals' social network and an indication of how close knit that social network is, was investigated using six variables. Two questions asked about the number of close friends and relatives the individual has, two asked the number of close friends and relatives they had contact with during the past month, another variable asked whether they were satisfied with the number of friends they had. The final variable, the Berkman social index scale, combines the above mentioned variables.

Wave one results indicate that sample respondents have an average of 5.4 relatives and 4.93 friends whom they feel are close and are willing to confide in. Just over 40% of the sample visits with one or more close friends or relatives more than once a week, while only 5.9% see these important people less than once a month. Regardless of the number of close friends or relatives reported, 83.7% of the respondents indicated they were satisfied with the number they have. The Berkman social network index indicates that 32.1% of the sample has many social contacts while only 13.9% have few social contacts.

The most stable measure pertaining to an individual's social network is the Berkman social index variable ($r = .6164$), the least stable measure is frequency of which they see close friends (.1057) and their memberships in social ($r = .2243$) and community (.2631) groups. The Berkman scale was correlated with the individual measures of community involvement. The correlations were in the predicted direction, but were small. This suggests that the Berkman scale is marginally stable and valid. The correlations of the Berkman social index with the social network measures are located in appendix F.

The difficulty with the social network items is that they correlate poorly with one another and are not stable across time. At best they are marginally reliable and invalid. Therefore, one can conclude that overall the measures used in this study to measure social integration are weak and will likely not yield statistically significant results.

CHAPTER 5 - TESTING THE HYPOTHESES

Introduction

The purpose of this chapter is to determine if there is statistical support for the hypotheses presented in Chapter 5. Analyses of the effects of the independent variable, degree of overweightness, on the dependent variables set out in the hypotheses, will aid in the assessment of the stigma thesis of obesity. An examination of possible nonlinearity is also included in the analysis. The rationale for these inclusions, as well as their effects will be discussed within the body of the chapter.

The results of the analyses performed in this project will be presented in a series of tables. The general format for the tables presenting the results of the regressions performed are as follows. The independent variables and respective slopes are contained in rows. Unstandardized slopes are used in this study because meaningful metrics were associated with the majority of the variables. In addition to the independent variables and the slopes, each table also presents the r squared value which provides an estimate of he proportion of variance in the dependent variable explained by the linear combination of the independent variables.

H1: Obesity will be negatively correlated with education.

The results of this study support earlier findings regarding the relationship between obesity and education. Correlational analysis of education and obesity for men and women indicated that the relationship between educational attainment and degree of overweightness is negative and statistically significant at the .05 level (-.1528). The latter

an individual, the less likely he is to have a higher level of education. However, upon further analyses it was found that this is only the case for women ($r = -.25995$).

Data summarized in Table 5.1.1 indicates that the obese portion of the sample are less educated than those who are under ideal, or slightly overweight. Thirty-one percent of the obese segment of the sample did not attain a high school diploma, a figure that is almost twice as great when the obese are compared against all other weight categories combined (31.1% versus 16.7%). Conversely, 20% of the non-obese respondents attained 16 years or more education, while only 13% of the obese respondents did so. This trend exists for both men and women. Over twice as many obese women attained less than a grade 12 education than non-obese women (38.6% vs 16%) while only slightly more obese men obtained less than a high school diploma than non-obese men (18.8 vs 17.9).

TABLE 5.1.1
Cross-Classification Of Education By Weight

	Less than grade 12	Grade 12	College	University
underweight 10% or more under ideal	11.3%	39.0%	27.7%	22.7%
ideal weight 5% under to 4.9% above ideal	17.0%	35.2%	26.8%	21.0%
chubby 9.9% to 19.9% above ideal	17.6%	42.9%	19.3%	20.2%
fat 20.0% to 29.9% above ideal	24.2%	39.6%	23.2%	13.0%
obese 30% or more above ideal	31.1%	40.0%	16.0%	12.9%
not obese*	16.7%	39.5%	23.8%	20.1%

* 'Not obese' refers to all weight categories combined, excluding the obese category.

When the average number of years of education is compared for those who are obese and those who are not, the analysis indicates that on average the obese are less educated than those who are not obese. When men and women are examined separately, however, we see that the effect of obesity on education is limited to women. Obese women have, on average, one and one-half fewer years of education than non-obese women. Refer to Table 5.1.2.

TABLE 5.1.2
Average Education of Obese and Non-obese Men and Women

	Men	Women
Not obese	12.914 years	12.743 years
Obese	12.753 years	11.214 years

Table 5.1.3 presents the results of regressing the independent variable of weight on the demographic and control variables on education for both men and women. Checks for nonlinearity were conducted on all variables. Results are located in Tables 5.1.4 and 5.1.5. Neither age nor Quetelet was found to have a significant non-linear effect on the education of men, while the effects for both age and Quetelet were non-linear and significant for women. The negative slope for the quetelet index on education for women indicates that for each unit increase in relative weight there is a corresponding decrease in education by .13495 years.

TABLE 5.1.3
Bivariate Regressions of Education
on Demographic and Control Variables

	Men		Women	
Variable	unstandardized slope	R^2	unstandardized slope	R^2
Quetelet	-.02072	.00067	-.13495*	.06757
Age	-.04314*	.04211	-.04410*	.06741

* significant at $p <= 0.01$.

TABLE 5.1.4
Tests for Nonlinearity for Age and Quetelet - Men

Variable	Regression 1	Regression 2
Age	.62563	
Age ^{2}	-.14077	
Quetelet		.3444
Quetelet ^{2}		-.0072
R^2	.07722	.0027

* significant at p< = 0.01.

TABLE 5.1.5
Tests For Nonlinearity for Age and Quetelet - Women

Variable	Regression 1	Regression 2
Age	.79746	
Age ^{2}	-.14804*	
Quetelet		-.28931*
Quetelet ^{2}		.00278*
R^2	.07687	.07220

* significant at p< = 0.01.

Table 5.1.6 presents the average education of women for selected weight categories. Column one of each table represents the actual average education expressed in years for each of the weight categories. Column two shows the average predicted values when education was regressed on the quetelet variable and column three presents the average predicted values when education is regressed on the quetelet variable while controlling for age. From this table it is evident that obesity does effect the educational attainment of white women. In all the columns of this table we see a decrease in the number of years of

schooling white women receive from those who are underweight (13.1 years of education on average) to those who are obese (11.5 years of education on average).

TABLE 5.1.6
Average Education of Women Expressed in Years for Selected Weight Categories

Weight Categories	Average Education	Average Predicted Education 1*	2**
underweight 10% or more under ideal	13.07	13.02	13.27
ideal weight 5% under to 4.9% above ideal	12.95	12.80	13.02
chubby 9.9% to 19.9% above ideal	12.30	12.48	12.77
fat 20.0% to 29.9% above ideal	12.35	12.08	12.46
obese 30% or more above ideal	11.21	11.40	11.92

* Regression 1: $Y = 15.701 - Quetelet(.13495)$
$R^2 = .06757$
** Regression 2: $Y = 13.910 - Quetelet(.10559) + Age(.97885) - Age^2(.01577)$
$R^2 = .11545$

In summary, the results of this study indicate that obesity affects the education of women but not the education of men. American women who are white and obese are less likely to achieve scholastically than their non-obese counterparts. Although obesity alone does not explain a great deal of the variance in the education of white American women (6.7%), it does explain over half of the total variance (11.5%). The significant negative effect does suggest that the size of an individual does affect the extent of the education they receive

(assuming that weight is causally prior to education); thus lending indirect support to the stigma thesis of obesity.

H2: Obesity will be negatively correlated with income.

Survey results did not provide information regarding individual income; only family income. As a result, family income is used as a proxy for individual income.

As weight classifications increase from ideal weight to obese, income drops for both men and women. When the family income of obese men and women are compared to all other weight classifications the obese have significantly lower family incomes than their non-obese counterparts. It is interesting to note that there is approximately a $200 difference in the family incomes of obese versus non-obese men while there is approximately a $2000 differences in women's family income.

Bivariate and multiple regressions were conducted to provide a clearer picture of the relationship between obesity and income. Table 5.2.1 presents the unstandardized slopes for the regressions of the independent and control variables for both men and women (see Tables 5.2.3 and 5.2.4).

TABLE 5.2.1
Bivariate Regressions of Income on Weight and Control Variables

	Men		Women	
Variable	unstandardized slope	R^2	unstandardized slope	R^2
Quetelet	110.48	.00410	-158.43*	.01211
Age	650.89*	.02175	-585.19*	.01571
Education	675.04*	.09697	911.49*	.10817
Dmarry	2671.2*	.04936	5165.70*	.15127

* significant at $P <= 0.01$.

Checks for possible non-linearity were also conducted. Age was found to have a significant, non-linear relationship with income in both men and women, while only weight had a significant non-linear relationship with the family income of men. The unstandardized slopes and the r^2 values for the non-linearity checks are presented in Table 5.2.2

Tables 5.2.3 and 5.2.4 present the average family incomes of men and women for selected weight categories. Column one of each table represents the actual average family income for each of the weight categories. Column two shows the average predicted values when income is regressed on the quetelet variable, based on the multiple regression equation.

The findings of this section provide partial support for the hypothesis that a person's weight can significantly affect his or her income. However, it is important to note that the extent and the manner in which obesity affects family income differs depending on the person's gender. The relationship between obesity and family income is best captured by a quadratic function in men, while in women, the relationship is linear and negative. Men's family income peaks among men who are slightly overweight and then continues to

decrease as they become more overweight. Women's family income is highest among women classified as ideal weight and drops as their weight increases. The differential effect of obesity on income of men and women may suggest that cultural expectations regarding physical appearance differs from men and women; with the expectations for a thin physique being stronger for women than for men.

TABLE 5.2.2
Tests for Non-linearity for the Age Quetelet Variables

	Men		Women	
	Reg.1 slope	**Reg.2 slope**	**Reg.1 slope**	**Reg.2 slope**
Age	7382.70*		9810.80*	
Age^2	-824.70*		-1244.60*	
Quetelet		2790.60*		-93.28
$Quetelet^2$		-52.25*		-11755
R^2	.06346	.02708	.10402	.01222

* significant at $P <= 0.01$.

TABLE 5.2.3

Average Family Income of Men by Selected Weight Categories

Weight Categories	Average Actual Income	Average Predicted Incomes 1*	2**
underweight 10% or more under ideal	16250	16933	19020
ideal weight 5% under to 4.9% above ideal	17972	18354	19786
chubby 9.9% to 19.9% above ideal	19465	19181	20170
fat 20.0% to 29.9% above ideal	18431	19296	20104
obese 30% or more above ideal	18354	18386	19361

* Regression 1: $Y = -17908 + Quetelet(2790.6) - Quetelet^2(52.253)$
$R^2 = .02708$

** Regression 2: $Y = -23855 + Quetelet(1693.7) - Quetelet^2(32.671) + Age(4590.4) - Age^2(477.09) + Educ(733.64) + Dmarry(1984.2)$
$R^2 = .20488$

TABLE 5.2.4

Average Family Income of Women by Selected Weight Categories

Weight Categories	Average Actual Income	Average Predicted Incomes 1*	2**
underweight 10% or more under ideal	17334	17888	20557
ideal weight 5% under to 4.9% above ideal	17906	17508	20349
chubby 9.9% to 19.9% above ideal	17537	17127	20141
fat 20.0% to 29.9% above ideal	16495	16668	19890
obese 30% or more above ideal	15433	15860	19447

* Regression 1: Y = 20914 - Quetelet(158.43)
R^2 = .01211

** Regression 2: Y = -8756.6 - Quetelet(86.733) + Age(7536.4) - Age^2(9 23.63) + Educ(841.60) + Dmarry(5003.2)
R^2 = .32176

H3A: Obese individuals will be less satisfied with their weight than normal weight individuals.

Some previous studies have indicated that the overweight tend to underestimate their weight and size as a result of having an altered perception of their physical size. The results of this study do not support such findings.

The majority of men and women 20% or more above their ideal weight correctly classified themselves as overweight, with significantly more women correctly identifying themselves than men. Similarly, in individuals who are between 5% and 19.9% above their ideal

weight the majority indicate they are average weight (62.5%) while the majority of women in this category indicate they are overweight (72.9%).

Table 5.3A.1 presents the proportions of obese versus non-obese men and women who describe themselves as underweight, average or overweight. This table clearly indicates that the obese segment of the sample has an accurate self image regarding their body size - they are overweight and they know it. It is interesting to note, however, that significantly more obese men see themselves as ideal weight than obese women.

TABLE 5.3A.1
Self Ascribed Weight Classification
by Actual Weight Classification of Men And Women

	% MEN n=807			% WOMEN n=1267		
Actual	**Under**	**Average**	**Over**	**Under**	**Average**	**Over**
under -10%	37.8	60.0	2.2	14.3	76.7	9.0
ideal -4.9%	6.4	88.3	5.3	.6	65.2	34.2
chubby 5-19.9%	1.5	62.5	36.1	.8	26.3	72.9
fat 20-29%	0.0	23.3	76.7	0.0	9.5	90.5
obese 30% +	0.0	10.6	89.4	0.0	2.9	97.1
not obese**	7.1	63.3	29.6	4.7	51.2	44.1

** not obese refers to all weight categories combined, excluding the obese category.

H3B: Obese people will be less satisfied with their health than normal weight individuals.

The stigma thesis of obesity suggests that the obese will have negative feelings towards their bodies as a result from internalizing society's critical views of overweightness. The general negative sentiments towards their physical body can be manifested in the way an individual perceives his or her physical health. The less satisfied with their physical body, the more likely they are to be unsatisfied with the status of their health.

Regression analyses using the unidimensional health index support the hypothesis that obesity plays a role in how satisfied an individual is with their health. Bivariate regressions of the health index on the Quetelet variable and a dummy variable of those who label themselves as overweight produced slopes that indicate that ones' actual degree of overweightness and whether or not they perceive themselves to be overweight, have an effect on how an individual perceives their health. The fatter a person the lower they rank their health. Refer to Table 5.3B.1.

Tests for nonlinearity were conducted for the age and the Quetelet variables. In both instances, it was found that the relationship between degree of obesity (Quetelet) and an individuals' self-reported health was linear and negative.

Table 5.3B.1 presents the unstandardized slopes for the bivariate regressions of the independent and control variables for men and women. Tables 5.3B.2 and 5.3B.3 present the health satisfaction for the weight categories of men and women. Column one of each table presents the observed average health: column two presents the average predicted value when health satisfaction is regressed on Quetelet, and column 3 presents the total effect of weight on health satisfaction.

Regressions were run using the midpoint of each of the weight categories. The sample averages were used for the remaining controls.

TABLE 5.3B.1

Bivariate Regressions of the Health Index on Quetelet and Demographic Variables

Variable	Men unstandardized slope	R^2	Women unstandardized slope	R^2
Quetelet	-.09489*	.01980	-.14747*	.07841
Age	-.26677*	.02232	-.11362*	.05560
Education	.24302*	.08288	.25580*	.06215
Income**	.09445*	.05938	.07931*	.04384
Dmarry	-.01712	.00001	-.02937	.00000
Daverage	.89971*	.04168	1.05750*	.05506

* Significant at $P <= 0.01$.

** $1,000 units.

TABLE 5.3B.2

Average Health Satisfaction of Men by Selected Weight Categories

Weight Categories	Average Health Satisfaction	Average Predicted Health Satisfaction 1*	2**
underweight 10% or more under ideal	13.081	13.129	13.521
ideal weight 5% under to 4.9% above ideal	12.802	12.901	13.408
chubby 9.9% to 19.9% above ideal	12.761	12.654	13.286
fat 20.0% to 29.9% above ideal	12.420	12.398	13.159
obese 30% or more above ideal	11.915	12.075	12.999

* Regression 1: Y = 15.017 - Quetelet (.094894)
R^2. = .01980

** Regression 2: Y = 9.4276 - Quetelet(-.046953) + Daverage(.91838) + Educ(.20744) + Income(.00007)
R^2 = .17469

TABLE 5.3B.3
Average Health Satisfaction of Women
by Selected Weight Categories

Weight Categories	Average Health Satisfaction	Av. Predicted Health Sat. 1*	2**
underweight 10% or more under ideal	12.814	12.967	12.954
ideal weight 5% under to 4.9% above ideal	12.834	12.613	12.821
chubby 9.9% to 19.9% above ideal	12.225	12.259	12.622
fat 20.0% to 29.9% above ideal	12.021	11.832	12.389
obese 30% or more above ideal	10.785	11.080	11.956

* Regression 1: Y = 15.784 - Quetelet(.14747)
R^2 = .07841
** Regression 2: Y = 10.982 - Quetelet(.08191) + Daverage(.64801) + Educ(.15945) + Income (.06)
R^2 = .14743

It is apparent from both the multiple and bivariate regressions that the degree of overweightness plays a stronger role on how women perceive their health than it does in men. The quetelet index variable explains the greatest amount of variance in how women judge their health (7.84%) while in the men it explains the least amount of variance (1.98%). From these findings it can be concluded that the size of an individual does influence how they evaluate their body and its health, and that the impact of obesity on physical self-perception is greater for women than men.

H4: Obese people will be less involved in community activities than normal weight individuals.

Findings regarding the extent of community involvement do not statistically support hypothesis 4. Results based on a community involvement scale did not yield significant differences in the number of different types of community groups a person is involved according to their degree of obesity. When the components of the scale were examined individually, the proportion of obese individuals involved in community activities differed from the proportion of non-obese involvement in two isolated incidents. Significantly fewer obese women were involved in children's and social community groups than were non-obese women. Approximately 20% of obese women were involved in children's groups, while 28% of normal weight women were involved, and 19% of obese women were involved in social groups in comparison to 30% of normal weight women. No significant differences were found for men. It could also be argued that being overweight results in a real decrease in health and physical self-perception without any recourse to stigma. However, if this were the case one would fully expect that the impact of obesity and physical self-perception would be the same for men and women.

There is no theoretical reason to expect differences to occur just in women's participation in these two isolated cases; the differences could be due to chance alone. Due to the lack of theoretical support these relations were not further investigated.

H5: Obese individuals will have lower levels of psychological well being than normal weight people.

Little statistical support was found to suggest that obese individuals have lower levels of psychological well being than normal weight individuals.

Chi squares, anovas, bivariate, and multiple regressions indicated that degree of obesity, as indicated by the Quetelet index, has no effect on an individual's: happiness, marital happiness, cheerfulness, feelings of being loved, feelings of being down or lonely, HAY score or degree of emotional problems.

Although no direct evidence was found to suggest obesity has an effect on psychological well-being, two results did suggest that mechanisms of denial and greater variability in psychological well-being do exist among obese women.

When women were dichotomized into two weight classifications; obese (30% or more above ideal body weight) and not obese, significant differences were found in the group's variances in the HAY and Emotional problems scores. Table 5.5.1 presents the average scores on the HAY and EPS scales and their respective variances for obese and non-obese women.

TABLE 5.5.1
Average Ratings of Obese and Non-obese Women on Two Measures of Psychological Well-being

		Not Obese	Obese	
HAY	mean	8.9416	8.5035	N= 1271
	variance	4.5493*	6.6232*	P=.0008
EPS	mean	4.2885	4.2908	N= 1271
	variance	.7776*	1.1220*	P=.0011

* Significant at P≥01.

Although there is no statistical difference between the means of the HAY and the EPS scale scores for these groups of women, it is interesting to note that these women have considerably more variance in their responses than non-obese women. These results, in conjunction with the trend for more women to report no emotional problems as their

weight increases, as indicated in Table 5.5.2, suggests that mechanisms of denial may be operating in some obese women. Although it is possible denial mechanisms may be operating, there is also the possibility that for women eating helps them cope with emotional problems and as a result actually are better adjusted than their thinner counterparts. Although this is not a particularly strong finding, it suggests that in social research of this nature differences in variances may point to subtle differences that can not be detected when comparing sample means.

TABLE 5.5.2

Emotional Problems of Women According to Weight Classifications

Weight Classifications	Some Emotional Problems	No Emotional Problems
underweight 10% or more under ideal	58.0%	42.0%
ideal weight 5% under to 4.9% above ideal	53.1%	46.9%
chubby 9.9% to 19.9% above ideal	49.7%	50.3%
fat 20.0% to 29.9% above ideal	43.8%	56.2%
obese 30% or more above ideal	44.7%	55.3%

* $chi^2 = 11.633$ P = .0203 N = 1271

H6: Obese individuals will have smaller social networks than normal weight individuals and report fewer social contacts.

No statistical support was found to suggest that the size of an individual will affect the size of their social network; nor the number of social contacts they will have. The moderate to low test-retest reliability scores (.2443 to .5414) indicate that these items do not correlate from year to year; and suggest that it is likely they do not correlate with any variables. In order to ensure this case, zero order correlations were conducted between the social network variables and the Quetelet index.

The zero order correlations between the social network variables and the Quetelet index for men and women are presented in Table 5.6.1.

TABLE 5.6.1
Zero Order Correlations of Social Index Variables and the Quetelet Index for Men And Women

Variable	Men	Women
Number of close relatives	.0067	.O282
Number of close friends	-.0046	.0569
Number of close friends seen per month	-.0259	.0086
Number of close relatives seen per month	.0233	-.0136
Berkman's social network index	.0851	.0546

The low reliability of these measures (see appendix A), the presence of very low correlation coefficients and lack of significant trends or differences when the social

network variables were compared across weight categories and in bivariate regressions strongly suggests that no relationship exists between the size of an individual and the extent of their social network (as indicated by the measures utilized in this study). The low test-retest reliability of these measures also suggests that these variables may not measure anything: and thus the lack of statistical support neither supports nor refutes this hypothesis.

H7 The impact of obesity will be greater for women than for men.

The analysis of the previous six hypotheses found that obesity plays a statistically significant role in determining the education of women, the family income of men and women, and the physical self perception of both men and women. Analysis of covariance (Ancova) in conjunction with stratified regression analyses were used to test the hypothesis that obesity affects women to a greater extent than it effects men.

Ancova was initially used to check if the slopes for the regression equations of education on obesity differed according to the sex of the individual. An F statistic of 4.12142 was obtained with a significance level of P = .0056. Based on the significance of the Ancova results it was concluded that at least one of the regression slopes of men and women differed and that an interaction effect did exist. A regression by strata was then conducted using the residuals of the Ancova. The results of this process indicated that the interaction present in the equation was between sex and the Quetelet variable. Since the effect of the Quetelet variable was the only one that had a different effect on the education of men and women a single regression equation can be used to model the relationship.

Y = 11.982 - .0118(Quetelet) + 1.785(dummy woman) - .087(dummy woman * Quetelet)
+ 1.0575(decade) - .17274(decade squared)
r = .09057

From this single equation we see that the effects of age on education is the same for men and women; where the effects differ is in the sex of the individual. The effect of weight on the education of men is -.0118, while the effect of weight on the education of women is -.0988.

Similar findings also occurred when the effects of obesity on income were investigated. The Ancova test produced an F statistic of 11.713 at a significance level P = .000. Interaction was found to occur between the Quetelet variables (Quetelet and Quetelet squared) as well as the marriage variable. Because interaction was found to occur between sex and both the Quetelet variables and the dummy marriage variable, I chose not to model the interactions in a single equation. The presence of an interaction effect between Quetelet and sex, as well as between sex and marriage suggests that obesity not only has an effect on the family income of people but that being married effects the family income of men and women differently.

The same process was used to evaluate the effect of obesity on the health satisfaction of men and women. The results of the Ancova were insignificant at the .01 level of significance, therefore it is concluded that the effect of obesity on the health perception of men and women is the same.

With the exception of health, these results provide strong support for the hypothesis that the effects of obesity will be greater for women than for men. Obesity has an impact on the education of women but not men and it has a more negative impact on the family income of women than men. Income and education are two of the primary social conditions studied by sociologists. Because obesity has more of an impact on these aspects on women's lives, it can be concluded that to be fat and female in America is

worse than being fat and male. These two findings strongly support the efforts by Susie Orbach in her 1978 book to demonstrate that fat is a feminist issue.

Based on the results of this study I, as well, argue that fat should be considered as a feminist issue . Regardless of whether fat is a cause or a consequence, it cannot be denied that the social implications of obesity are stronger and more adverse for women than they are for men. Appearance is still more of an issue for women than it is for men; for fat women are poorer and less educated than their male counterparts.

Chapter 6 - CONCLUSION

Introduction

The primary aim of this study has been to determine whether the obese in American society lead a qualitatively different life than their non-obese counterparts. Through the identification of social and social-psychological differences between the obese and non-obese the stigma thesis of obesity was indirectly tested. Results of this study suggest that obesity has little direct impact on most facets of an individual's life. Findings indicate no relationship exists between obesity and the measures of social-psychological well-being and social relations used in this study. Results did indicate however, that obesity does significantly affect three fundamental areas of an individual's life: education, income and physical self-perception. The fact that obesity affects these critical aspects of an individual's life supports the stigma thesis of obesity and suggests obesity may result in discrimination in these areas. The implications of these findings in conjunction with theoretical and methodological considerations are discussed in subsequent sections of this chapter. Suggestions for further research are found in the concluding section of this chapter.

Theoretical Considerations

Symbolic Interactionism and work inspired by Goffman in the 1960's is traditionally coupled with qualitative research methodologies. This study strayed from the traditional to apply quantitative methods in testing the hypotheses. The choice was a conscious one, done in an attempt to strengthen and add scientific credibility to a theory in an ever increasing "quantitative world". Previous work done in this theoretical tradition has only examined clinical samples through ethnographic techniques. This study was an attempt to

apply and test the theory using actuarial methods. Evaluation of a theory is difficult because the theory itself cannot be empirically tested. All that can be done is to test the hypotheses that arise from the theory. If the hypotheses do not hold up empirically, one of four conclusions can be drawn: the fault lies in:

- the theory;
- the derivation of the hypotheses; and
- measurement error or instrument insensitivity.

The phenomenon predicted by a theory may exist, but not exactly as specified by the concrete hypotheses (Stockard and Johnson, 1980). Therefore, even though the phenomenon predicted by the theory does exist, it is undetected through the chosen research method and tools. In spite of the lack of statistical support for many of the hypotheses presented, confidence in the stigma thesis of obesity remains for a number of reasons. Firstly, a relatively large number of case and clinical studies support the stigma thesis.

Secondly, issues regarding obesity arise repeatedly in mediums of popular culture. "Today in this country and in many others we are constantly being reminded through all forms of media that it is slimness which represents beauty, youth and happiness; and perhaps most importantly social acceptance" (S.J. Chetwynd et al 1974). Women's' magazines are filled with articles on how to lose weight and how to disguise your oversized body. Television programs and newspaper articles address obesity as a social issue (Mark Bastion, Nov. 7, 1990). Comedians rely on obesity to provide much of their material. "You can't joke about ethnic groups, and its not OK to poke fun at the handicapped. Fat is the last safe frontier" (Dee Davey, 1990).

> If fat people are unhappy people, blame not their fat but their fellow citizens who bill them as clowns, clodhoppers, cannibals or criminals.

> who spread such commercial rumours as "To be fat is to end Life"; who sport bumper stickers on their vans, "No FAT chicks", who print posters which read "Its in to be thin, Its out to be stout."
> (Hillel Schwartz, 321:1986)

The existence of fat advocacy groups such as NAAFA, the National Association to Advance Fat Acceptance are also testimony that some fat people feel stigmatized. The answer to the question, how prevalent, and to what extent does the discrimination manifest itself has not been fully answered by the results of this study. The results however, do suggest the extent and the prevalence of the stigma of obesity is not that great.

Finally, the examination of obesity using Goffman's insights on stigma in conjunction with Symbolic interactionism itself stresses the role interaction and perception play in the stigma of obesity. Obesity is an elusive concept embracing a number of interrelated factors in the human environment (for example social, psychological, physical and cultural factors). The importance attached to each component varies between individuals and across sub-groups. The obese individual is not viewed as a passive recipient of society's message regarding fat. Symbolic Interactionism stresses the three way process between the mind, the self and the society. The individual is not entirely created by the environment in which he finds himself, but he is informed and influenced by his surroundings, with each individual being affected in a different way.

The stigma thesis suggests that fat people will be treated differently than normal weight individuals; they will be discriminated against. It does not however, imply that the differential treatment will not have the same degree of social-psychological effect on the stigmatized individual.

The social and social-psychological effects of obesity on an individual vary from person to person, depending on the situations they find themselves in and what they take away from those interactions. The application of this theory to actuarial data complements earlier work by Allon. Her work provides an in-depth examination of the stigma of obesity while this study provides a more general overview of the consequences of the stigmatization of obesity in American culture.

Work by Allon concentrated on clinical analyses. Clinical research, by nature focuses on the extreme or exceptional cases that end up seeking treatment. The problem with these analyses is that the dynamics of do not apply to the vast majority of the population. consequently, actuarial methods, such as the ones used in this study, highlight the average and present a much different picture than clinical methods. One set of results is no more real or valid than the other. Allon's work examines the stigma of obesity in those who feel discriminated against, while this study looks at a much broader base of obese individuals. As a result, this thesis has not dealt well with the types of individuals highlighted in the ethnographic studies conducted by Allon.

Methodological Considerations

There are a number of methodological issues involved in this study that should not go unmentioned, for these issues may, in part, be responsible for the apparent lack of empirical support for the stigma thesis. Some of these issues are evident in social research in general, while others are specific to this study.

The major methodological problem encountered in this study is a common one faced by social researchers embarking on secondary data analysis. Although this study attempted

to test a stigma or discrimination thesis of obesity; no question regarding stigma, feelings, discrimination or prejudice were included in the survey. An attempt was made to operationalize variables in the way most appropriate to the theory; as a result hypotheses had to be modified so that they could be tested by the data available. The modification of the hypotheses then gives rise to a question of validity. Does the measurement instrument actually measure what it was intended to?

This question is a difficult one to answer. The more a definition is changed, the more the validity is compromised. Operational definitions may have been changed so dramatically they no longer measure the theoretical concepts they were intended to measure.

The measurement variables used to measure the latent concepts under investigation in this study are not as accurate as the researcher would have wished. Many of the variables utilized were unable to fully capture the essence of the concepts they were intended to measure. For example, family income was used as a proxy for personal income, and the social network variables failed to provide information regarding the level of involvement or the satisfaction individuals received from their social networks. Similarly, questions regarding psychological well-being were unable to identify or to measure the coping strategies that they have been employed by the obese people to compensate for the discrimination with which they may be faced. Thus the validity of some of the measures employed in this study may be tenuous and as a result may contribute to the lack of statistically significant results.

The second methodological consideration is the choice of the researcher to place weight in a position causally prior to all other variables except age and sex. The choice to place weight as causally prior to the other variables was based on the results of Stunkard and Monello's 1961 research that indicated child and adolecsent-onset obesity has greater negative effects on the psychological well-being of the individual than did adult onset obesity. Unfortunately, we had no way of determining when the obese respondents attained their obesity. The choice of placing weight in a causally prior position may be legitimately questioned; however, the researcher based this study on the assumption that the majority of the negative effects of obesity will be most prevalent in those with childhood or adolescent -onset obesity.

The final methodological consideration of this study is endemic to the nature of this study and suggests that our findings underestimate the pervasiveness and severity of the consequences of the social stigma of obesity. Population estimates of obesity derived from self reported data tend to err on the side of conservativeness. Work by Millar in 1986 indicated that, although self reported indicators of obesity are acceptably accurate, systematic underestimates of weight by specific age-sex groups and over estimates of height more generally, occur. The tendencies of certain groups to misrepresent their weight and height in a systematic fashion may produce more homogeneous results than actually exist.

By far the most severe of the methodological constraints encountered in this study was the lack of specifically applicable questions asked in the survey. The results of this study could have been far stronger had questions regarding perceived discrimination and duration of obesity been included in the survey. The following types of questions would have been useful:

1. At what age would you say you became overweight?
2. What was your personal income before taxes for last year?
3. What is your current occupation?
4. What industry do you work in?
5. Have you ever felt discriminated against because of your size?

   5a. In what situations?
6. How active are you in the groups and organizations you belong to ?
7. Why do you belong to the groups and organizations you belong to?
8. Are you satisfied with your weight?
9. Do you like yourself?
10. What was the occupation of your father?
11. Would you say you were brought up in a lower, lower-middle, middle, upper-middle or upper class household?

Additional questions pertaining to psychological well-being and self esteem would have also been beneficial to this study. The questions asked in this survey were not focused and did not cover all the issues necessary to fully test the stigma thesis. This survey asked no questions regarding feelings of shame, guilt, perceived discrimination or feelings of estrangement. As a result of the general questions contained in the survey, the conclusions drawn from this study are also quite general. Had the above mentioned questions been included in the original survey the results of this work would have been more specific.

Suggestions for Further Research

When this study was designed, it was realized that the examination of obesity as a social stigma using secondary analyses of survey data, would bring about many questions, and

possibly supply few answers. As expected, the results of this study gave rise to many suggestions for further research.

It is clear that the sociological implications of obesity are complex and poorly understood. In order to more completely understand the social ramifications of obesity's stigmatization, further actuarial investigations must be undertaken. It is suggested that further research of this type first examine other secondary data sources which contain information regarding height, weight, social and social-psychological variables; secondly and more importantly, primary research must be conducted. Not until the development and administration of a survey designed specifically to address the issues of obesity, stigma and discrimination, will survey research be able to adequately test the hypotheses derived from the stigma thesis.

The stigma of obesity is a real social phenomenon worthy of academic investigation. This actuarial study provided limited support for the gravity of the situation in our society. To date work in the clinical and ethnographic traditions have provided the richest and most in-depth insight into the stigma of obesity. Future research inspired by this study has the potential to provide further enlightenment on the stigma of obesity; but first the method must be refined - the right questions must be developed, tested and asked, if anything is to be learned about the prevalence and repercussions of obesity through social survey research.

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APPENDIX A
Pearson's Correlation Coefficients between Time 1 and Time 2 Variables

Variable	Correlation Coefficient
Height	.8991
Weight	.9437
Qu[illegible]el	.9087
M[illegible]	.8854
Famin[illegible]ome	.7462
Health	.5862
Overweight	.6131
Physact	.3262
Energy	.5159
Physcond	.4411
Healthcond	.5887
Churchgrp	.5414
Childgrp	.4048
Commungrp	.2631
Socialgrp	.2443
Enjoytime	.4930
Happy	.4798
Cheeroft	.3242
Lovoft	.3345
Downoft	.3910
Lonelyoft	.4308
HAY	.5307
Closerel	.5368
Closefrnd	.5392
Frqfrnd	.1057
Frqrel	.3304
Enoughfrnd	.3887
BSN final	.6165

APPENDIX B
Measurement Variables

The following are lists of the variables available from the data set. Variables are presented in tables according to the concepts they are intended to measure.

NATIONAL SURVEY OF PERSONAL HEALTH PRACTICES AND CONSEQUENCES

SURVEY VARIABLES

TABLE 1
Independent Variables

Variable	Description
HEIGHT	About how tall are you without your shoes on? (feet and inches)
WEIGHT	How much do you weigh without clothes on? (pounds)
MTLFWT	Desirable weight recode (per 1960 Metropolitan Life Insurance tables)

TABLE 2
Demographic Variables

Variable	Description
AGE	Age of respondent in years (20-64)
SEX	Sex of respondent (1 = male,2 = female)
EDUC	What is the last year of school you have completed (none to 16 years plus)
FAMINC	Families combined income in 1978 before taxes (< $5000 - $25000 +)

TABLE 3

Self-Perception of Health and Weight Variables

Variable	Description
PHEALTH	Would you say your health is excellent, good, fair or poor?
OVERWT	Do you consider yourself to be overweight, underweight, or about average?
PHYSACT	How would you compare your level of activity with other people your age? (much less active - much more active)
CAREHLTH	How good a job do you feel you are doing in taking care of your health?
PHYSCOND	In general, how satisfied are you with your overall condition? (not at all - very satisfied)
HLTHCOND	Compared to others your age would you say your health is? (poor - excellent)
ENERGY	Compared to other people your age, would you say you have (much less energy - much more energy)
PHYSSTA	Physical health status recode (severely limited - healthy, high energy)

TABLE 4

Community Involvement Variables

Variable	Description
CHURCH	Have you participated in a church group meeting in the last three months? (yes/no)
CHRGRP	Have you participated in a group concerned with children in the last three months? (yes/no)
COMMNGRP	Have you participated in any other group concerned with community betterment in the last three months? (yes/no)
SOCIAL	Have you participated in any other group that is mainly social, fraternal or recreation? (yes/no)

TABLE 5

Involvement in Physical Activity Variables

Variable	Description
SWIM	How often do you go swimming in the summer? (never, rarely, sometimes, often)
LONGWALK	How often do you go for long walks? (never, rarely, sometimes, often)
ACTVHBBY	How often do you work on a physically active hobby such as dancing or gardening? (never, rarely, sometimes, often)
RUN/JOG	How often do you go running or jogging? (never, rarely, sometimes, often)
CALSTHNT	How often do you do calisthenics or exercise? (never, rarely, sometimes
BICYCLE	How often do you ride a bike? (never, rarely, sometimes, often)
OTHSPORT	How often do you participate in any other active sports I haven't mentioned? (never, rarely, sometimes, often)

TABLE 6

Psychological Well-Being Variables

Variable	Description
ENJOYTIME	How much enjoyment do you get out of your free time? (a little some, a great deal, don't know)
HAPPY	All in all how happy are you? (not too happy, pretty happy, very happy, don't know)
HAYSCORE	How are you recode (range 00-12)
CHEEROFT	How often in the past month have you felt cheerful and lighthearted? (never, rarely, sometimes, very often, refused, don't know)
LOVEOFT	How often in the last month have you felt loved and wanted? (never, rarely, sometimes, very often, refused, don't know)
DOWNOFT	How often in the last month have you felt downhearted and blue? (never, rarely, sometimes, very often, refused, don't know)
EPSSCORE	Emotional Problems Score (range = 1 -5, severe problems - no problems)

TABLE 7
Social Interaction Network Variables

Variable	Description
MARITAL	Current marital status
CLOSEREL	How many close relatives do you have? These are people that you feel at ease with, can talk to about private matters and can call for help. (range 0-10)
CLOSEFRD	How many close friends do you have? These are people that you feel at ease with, can talk to about private matters and can call for help (range 0-8)
FRQFRD	How many of these close friends or relatives do you see at least once a month? (range 0-10+)
FRQREL	About how often do you visit with any of your close friends or relatives? (range 5 categories, more than once a week - less than once a month)
ENOUGHFR	Do you feel you have enough close friends or relatives? (1 yes, 2 no)
BERKMAN	Berkman's Social Network index (construction variables) (range 1 [illegible])

APPENDIX C

Frequency Distribution of Sample Characteristics for Wave 1 and Wave 2

(N 2121)

	Sample %	Sample size
GENDER		
male	39.2	839
female	60.8	1289
		2121
EDUCATION		
none	0	0
grades 1-4	.6	12
grades 5-6	.9	18
grades 7-8	4.3	90
grades 9-11	12.5	264
completed grade 12	39.0	826
13-15 years	23.1	489
16 years or more	19.7	471
		2116
AGE		
20 - 24 years	11.8	251
25 - 29 years	15.3	325
30 - 34 years	13.9	294
35 - 39 years	12.3	260
40 - 44 years	10.3	219
45 - 49 years	8.9	189
50 - 54 years	9.8	207
55 - 59 years	9.3	198
60 - 64 years	8.4	178
		2121

	WAVE 1		WAVE 2	
	%	N	%	N
FAMILY INCOME				
< $5,000	5.8	117	4.6	93
$5,000 - $9,999	15.1	303	11.8	239
$10,000 - $14,999	20.9	420	17.9	363
$15,000 - $24,999	34.4	691	33.1	672
$25,000 or greater	23.8	479	32.6	662
		2010		2029
MARITAL STATUS				
married	70.1	1487	71.3	1513
widowed	4.7		5.1	108
divorced	9.1		9.3	198
separated	2.7		2.0	43
never married	13.5		12.2	259
		2121		2121
SATISFACTION WITH WEIGHT				
underweight	5.0	103	5.0	103
average	50.3	1039	49.8	1035
overweight	44.7	922	45.3	941
		2121		2121
HEALTH SATISFACTION (v9)				
poor	3.3	70	3.0	63
fair	12.0	253	11.9	251
good	49.6	1049	45.0	951
excellent	35.1	743	40.2	850
		2115		2115
ENERGY (v68)				
much less	2.6	53	2.4	50
somewhat less	17.0	349	17.5	364
somewhat more	57.7	1184	58.4	1214
much more	21.5	442	20.1	419
equal to others	1.3	26	1.5	31
		2054		2078

	WAVE 1		WAVE 2	
	%	N	%	N
PHYSICAL CONDITION				
not at all satisfied	3.2	67	3.1	66
not too satisfied	14.1	298	12.6	268
somewhat satisfied	54.1	1140	54.7	1159
very satisfied	28.6	602	29.6	627
		2107		2120
HEALTH IN COMPARISON TO PEERS				
poor	2.8	58	2.9	62
fair	12.0	253	11.7	247
good	51.4	1083	54.3	1174
excellent	33.9	715	31	655
		2109		2111
HEALTH PERCEPTION SCALE (CONSTRUCTED)				
poor (4-6)	1.9	39		
fair (7-9)	6.9	140		
good (10-12)	37.1	754		
excellent (13-16)	54.1	1089		
		2031		
COMMUNITY INVOLVEMENT (PERCENTAGE INVOLVED IN)				
church groups	35.1	748	36	736
children's groups	25.7	544	27.1	597
community service	24.3	514	24.2	513
social or sporting	30.4	643	31.6	670
COMMUNITY INVOLVEMENT SCALE (CONSTRUCTED)				
0 groups	37.2	789		
1 group	29.7	629		
2 groups	18.2	385		
3 groups	10.2	216		
4 groups	4.8	102		
		2121		
ENJOY TIME				
a little	6.1	128	5.3	111
some	20.6	436	20.7	438
a great deal	73.3	1549	74.0	1565
		2113		2117

	WAVE 1		WAVE 2	
	%	N	%	N
HAPPY				
not too happy	16.4	136	6.6	140
pretty happy	46.0	971	48.7	1030
very happy	47.6	1006	44.7	947
		2113		2117
HAPPY MRG				
not too happy	2.8	41	2.5	38
pretty happy	32.8	487	35.5	536
very happy	64.4	955	62.0	973
		2113		2117
CHEEROFT				
never	1.4	29	1.2	25
rarely	5.3	112	4.7	99
sometimes	34.1	721	34.0	719
very often	59.2	1252	60.1	1269
		2114		2112
LOVOFT				
never	2.5	53	1.8	37
rarely	5.1	107	44.3	91
sometimes	24.1	507	22.9	482
very often	68.2	1433	71.0	1495
		2100		2105
DOWNOFT				
never	15.2	321	19.2	404
rarely	47.3	999	46.0	971
sometimes	30.0	632	28.9	610
very often	7.5	158	5.9	124
		2110		2109
H.A.Y.				
low	5.2	82	4.8	73
medium	25.6	402	24.2	367
high	69.1	1084	70.9	1074
		1568		1514

	WAVE 1		WAVE 2	
	%	N	%	N
EMOTIONAL PROBLEM SCALE				
severe problems: sought professional help	3.4	72	2.8	59
severe problems: needed but did not seek professional help	1.6	33	1.1	24
severe problems: did not feel need for help	6.3	133	5.1	108
some problems	37.2	789	37.1	786
no problems	51.6	1094	53.9	1144
		2121		2121
BERKMAN'S SOCIAL NETWORK INDEX				
low (few contacts)	13.9	295	13.3	283
medium	32.7	693	23.7	693
medium/high	21.3	451	21.3	451
high (many contacts)	32.1	681	32.7	694
		2121		2121
AVERAGE NUMBER OF CLOSE RELATIVES		5.24		5.09
AVERAGE NUMBER OF CLOSE FRIENDS		4.93		4.67
AVERAGE NUMBER OF CLOSE FRIENDS AND RELATIVES SEEN IN LAST MONTH		6.21		6.07
FREQUENCY OF VISITS WITH CLOSE FRIENDS OR RELATIVES				
≥ once/week	42.6	882	40.1	840
about once/week	30.4	630	32.3	676
2-3 times/week	11.7	243	11.3	236
about once/month	9.3	192	10.2	214
< once/month	5.9	123	6.1	127
		2070		2093
DO YOU FEEL YOU HAVE ENOUGH CLOSE FRIENDS AND RELATIVES				
yes	83.7	1750	86.3	1808
no	16.3	340	13.7	286
		2090		2094

APPENDIX D
Sample Weight Distribution at Wave 1 and Wave 2

	Time 1			Time 2		
	Men	Women	Total	Men	Women	Total
10% or more under ideal	4.9	13.7	10.3	4.6	14.3	10.5
5%-9.9% under ideal	6.3	12.7	10.2	5.1	12.0	9.3
4.9% above or below ideal	23.0	26.4	25.2	22.2	25.2	24.0
5%-9.9% above ideal	17.0	11.8	13.8	19.1	10.1	13.6
10%-19.9% above ideal	24.7	16.4	19.7	23.8	16.9	14.6
20%-29.9% above ideal	12.7	8.3	10.0	14.2	8.3	6.6
30% or more above ideal	10.5	11.1	10.9	11.1	13.2	12.4
sample size	809	1271	2080	808	1262	2070

APPENDIX E

Health Perception, Psychological Well-being Correlation Matrix

1998 CASES	DF = 1996	R@ .0500 = .0439	R@ .0100 = .0576
VARIABLE			
HEALTH	.1505	.1221	-.1639	-.1119
PHYSCOND	.1952	.0876	-.2124	-.1487
HLTHCOND	.1746	.1536	-.1887	-.1654
ENERGY	.1362	.3004	-.1332	-.1031
	CHEEROFT	LOVEOFT	DOWNOFT	LONLYOFT

APPENDIX F

Correlation of Berkman Social Index with Individual Social Network Variables

2076 CASES	DF = 2074	R@ .0500 = .0430	R@ .0100 = .0565	
VARIABLE				
BSNFINAL	.1615	.1976	-.1536	-.2311
CHURCH	-.0756	-.0925	.0293	.0530
CHILDGRP	-.0480	-.0682	.0188	.0673
COMMNGRP	-.0659	-.0164	.0042	.0036
SOCIAL	-.0771	.0221	.0492	.0505
	CHEEROFT	LOVEOFT	DOWNOFT	LONLYOFT