MONTANA STATE UNIVERSITY

Weight loss outcomes and health locus of control following gastric stapling surgery
by Colleen Beth Hook

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Nursing
Montana State University
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Abstract:
Post-surgical weight loss is important for morbidly obese gastric stapling patients; however, some patients fail to lose the desired amount or are unable to maintain the weight loss. No investigations have been reported which examine factors associated with changes in weight for these patients. Therefore, this descriptive/exploratory study was designed to examine demographic factors and health locus of control variables for gastric stapling patients who were or are members of gastric stapling support groups. The health locus of control conceptual framework provided the association between health-related behavior and its reinforcement.

Twenty-five gastric stapling patients from two different locations responded to the Multidimensional Health Locus of Control Questionnaire. Specifically, internal, external/chance and external/powerful-others variables were determined by the 36 item Likert format questionnaire which has demonstrated reliability and validity. The two samples were considered separately based on the lack of homogeneity determined by the Mann-Whitney U and F-ratio statistics. Both descriptive and inferential statistics including means, S.D., ranges, analysis of variance and pearson correlations were used for data analysis.

Based on their responses, the two samples had less belief in powerful-others controlling their health than the normative population; however, both samples had higher beliefs that health is internally regulated than the normative population. Both study samples had similar beliefs as the normative population that chance has an average influence on health. No relationships were identified between selected demographic factors and health locus of control variables except a slight inverse relationship between reason for selecting surgery and the belief in chance. This study's results provided no clear evidence that any specific health locus of control orientation is associated with weight outcomes following surgery. External validity was limited by a convenience selection of accessible groups and it was not determined how representative the samples were of the target population; therefore, the findings cannot be broadly generalized. An important implication for nursing is not to make general assumptions relative to these patients, but rather develop an individual assessment of each client. Nursing care must be planned to enhance compliance based on an understanding of each patient's source of reinforcement for health-related behaviors. The results of this investigation indicate the need for additional research to better understand factors associated with weight outcomes following gastric stapling surgery.

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A thesis submitted in partial fulfillment

of the requirements for the degree

of

Master of Nursing

MONTANA STATE UNIVERSITY

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APPROVAL

of a thesis submitted by

Colleen Beth Hook

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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ABSTRACT

Post-surgical weight loss is important for morbidly obese gastric stapling patients; however, some patients fail to lose the desired amount or are unable to maintain the weight loss. No investigations have been reported which examine factors associated with changes in weight for these patients. Therefore, this descriptive/exploratory study was designed to examine demographic factors and health locus of control variables for gastric stapling patients who were or are members of gastric stapling support groups. The health locus of control conceptual framework provided the association between health-related behavior and its reinforcement.

Twenty-five gastric stapling patients from two different locations responded to the Multidimensional Health Locus of Control Questionnaire. Specifically, internal, external/chance and external/powerful-others variables were determined by the 36 item Likert format questionnaire which has demonstrated reliability and validity. The two samples were considered separately based on the lack of homogeneity determined by the Mann-Whitney U and F-ratio statistics. Both descriptive and inferential statistics including means, S.D., ranges, analysis of variance and pearson correlations were used for data analysis.

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CHAPTER 1

INTRODUCTION

Identification of the Problem

Stapling of the upper portion of the stomach into a 30 to 50 cc pouch, gastric stapling or gastroplasty, has recently become a popular method used to induce weight loss for morbidly obese individuals, persons 100 pounds or 100% greater than their ideal body weight (Hallberg, 1980). The surgical procedures are new and still considered experimental in nature (Bondi, 1979; Hallberg, 1980). Some of the morbidly obese patients who have elected gastric stapling surgery as a 'last resort method' to lose weight have continued to struggle with unwanted weight gain despite the dramatic decrease in gastric volume created by the surgery (Buckwalter, 1981). Numerous studies examining the psychosocial and physiological components associated with obesity have been reported; however, none of these studies attempt to identify the factors that may contribute to the inability of some gastric stapling patients to maintain weight loss.

These patients suffer from both psychosocial difficulties and chronic health problems secondary to their morbidly obese state. It is at this point that these patients fall within the interest of nurses and the practice of nursing. Nursing is defined by Barnard (1982) as "diagnosis and treatment of human responses to health problems" (p. 1). She expands the definition to explain that nurses most frequently deal

with patients in transitional stages. Nursing intervention with gastric stapling patients focuses on both pre-surgical and post-surgical transitional stages. There is a need to know more about these patients in order to better assist in the stages of transition. To date, the most systematic measuring or recording of data regarding these patients has been weight change and surgical complications (Boehmer & Turk, 1981; Félder & Amaral, 1981; Gomez, 1980). Just recording weight change does not tell us what factors may influence or be associated with the weight changes. There is a need for research that identifies the factors associated with the changes in weight (Buckwalter, 1981; Hartz, Kalkhoff, Rimm & McCall, 1979; MacArthur, Jewell, Hardin & Smith, 1981; Stellar & Rodin, 1980).

Discussion of the Problem Through a Case Study

The investigator became interested in morbidly obese patients electing surgical weight control as a result of work done with these patients in several graduate class assignments. In one assignment the investigator subjectively examined the impact of chronic illness, morbid obesity, on family coping and adaptation. In another assignment the investigator implemented a gastric stapling support group for the local area patients.

To assist in understanding the evolution of the research question which developed while working with these patients, a description of the process is provided in the following paragraphs. As will be seen from the description, common problems shared by a young mother and later support group members served as the basis for the research idea.

During the process of weekly interviews with a young mother who had been morbidly obese since childhood, the investigator was impressed by the monumental impact that morbid obesity had upon this mother and her family. The mother suffered from psychosocial and chronic health problems which are associated with morbid obesity. These problems were characterized by depression, social isolation and unemployment due to unwillingness to seek employment. In addition, the mother suffered from hypertension and required medication to keep it under control. Because of these problems, she described seriously considering suicide as an alternative to rid herself of the hopelessness she felt regarding her inability to lose weight. At this point, the young mother chose gastric stapling surgery.

Over the next twelve months following surgery this woman lost 144 pounds and the hypertension associated with her previous massive weight disappeared. After the tremendous weight loss the mother gradually increased the volume of food she ate to include more high caloric fatty foods, and also ate more frequently. Although the mother described early satiety from eating only small amounts of food along with a lack of appetite since surgery, she continued to eat excessively and described feeling unable to control herself. As the mother's former eating habits returned she watched her weight regain approach 80 pounds and once again the hypertension associated with severe obesity returned.

The investigator became acquainted with other morbidly obese gastric stapling patients in the area through introductions provided by

the young mother. In response to requests from these patients, a support group was organized by the investigator.

In discussion with members of the support group a similar weight regain pattern began to emerge. Despite expressing an earnest desire to lose weight, and having undergone major surgery to have their stomachs stapled, some patients were unable to maintain a significant weight loss or continue losing to their target weights. Some of the patients in the group expressed interest in developing a weight control program but were unwilling to attempt any weight reduction method that had previously failed. As a result, there were few new avenues left to try. Strategies for modification of individual problem eating behaviors were suggested but were thwarted by repeated failures. Consequently, the investigator began to question what method(s) would help patients whose behaviors included an inability to control eating habits while verbalizing a strong desire to lose weight and who verbally acknowledged that making the needed eating behavior changes was a matter of personal responsibility.

To the investigator, the answer was simple -- to have the patients stop putting excessive amounts of food into their mouths. However, that simple answer had proven to be multidimensional in nature. The patients expressed desire to lose weight but generally had difficulty avoiding overeating. A question arose as to what mechanisms might be operating and influencing their behaviors. A search for answers led to the possibility that the patient's personality characteristics of

health locus of control, personal belief about degree of control over health, could be a possible factor influencing the weight control problem.

Purpose

Therefore, the purpose of this study is to describe the demographic characteristics, patterns of weight change, locus of control characteristics and principle reasons for chosing surgery for post-gastric stapling patients who were or are members of gastric stapling support groups.

Operational Definitions

To facilitate understanding of the remainder of this paper operational definitions of important terms are provided.

Morbid Obesity	An individual who is 100 pounds overweight or 100% greater than their ideal body weight (Bukoff & Carlson, 1981).
Health Locus of Control	A stable personality characteristic indicating events related to health to be either within or outside a person's control regardless of the situation (Wallston & Wallston, 1982).

External Health Locus of Control — The view that factors over which one has little control such as fate, chance and luck determine ones health (Wallston, Wallston & DeVellis, 1978).

Internal Health Locus of Control — The view that becoming healthy, staying healthy or becoming sick results from actions over which one has control (Wallston et al. 1978).

Gastric Stapling — Gastroplasty or gastric partitioning surgery in which the upper portion of the stomach is stapled into a 30 to 50 cc pouch to limit the volume of food intake (Gomez, 1980).

Overfat — Weighing over ideal body weight due to excess fat (S. Dinkel, personal communication, October 17, 1983).

Weight Patterns — Trends describing weight changes following gastric stapling surgery.

Gastric Stapling Support Group — A group of gastric stapling patients assembled by a health professional or patient for the purpose of providing education, coping skills, peer encouragement and other supporting activities for assistance in recovery from gastric stapling surgery.

Assumptions

The following assumptions are pertinent to this study:

1. Determination of health locus of control personality characteristic is appropriate for the morbidly obese gastric stapling patient.

2. The patients will be honest when recording their present weight, pre-surgical weight and weight pattern following surgery on the demographic data form.

Significance of the Study

The findings of this study will provide a foundation of knowledge for the nursing profession regarding demographics, health locus of control, patterns of weight change and reasons patients choose to have gastric stapling surgery. This foundation of knowledge can be used to educate current as well as future practitioners so they will be better informed when dealing with the transitional stages of the patients.

This knowledge can be utilized for making nursing assessments of the gastric stapling patient and planning for needed interventions. The intervention can involve such areas as pre-operative counseling, patient education, providing individualized nursing care to hospitalized patients and assistance in the support group setting.

As was previously defined, nursing involves the "diagnosis and treatment of human responses to health problems" (Barnard, 1982, p. 1). Nurses most frequently diagnosis, treat and provide care for patients in transitional stages (Barnard, 1982). A key factor in providing individualized nursing care to the patient in transition is knowing the patient. Nurses can provide better care if they understand the patient and the difficulties associated with recovery for that patient. Nursing interventions that are individualized foster better nurse-patient rapport and enhance recovery through improved nursing care.

Since some patients selecting this surgery do not achieve satisfactory weight loss or stabilization, it is of considerable importance to continue to explore factors which may influence or be associated with this phenomena. This study will provide nurses with preliminary insight about the gastric stapling patient and identify the need for further research in this area. Through a more complete understanding of the patient selecting gastric surgery it is possible that health professionals may be able to determine those patients who may or may not benefit from this surgery.

CHAPTER 2

LITERATURE REVIEW

Introduction

Morbid obesity, weight loss and health locus of control have appeared in the literature over several decades, but there has been little research relating these topics. Most of the research on obesity has been of the descriptive/exploratory type and has involved individuals who were not classified as morbidly obese. The key to better understanding of the morbidly obese may be to directly involve them in research related to identification of factors influencing or associated with weight changes.

Some morbidly obese patients having had gastric stapling surgery have been unable to reach a desired weight loss or maintain a reduced weight. There is a need to more systematically study this group of patients to provide insight into factors that may be associated with their changes in weight. Professional nurses can better assist these patients in stages of recovery through a more complete understanding of the individual and factors influencing their weight. Topics to be discussed in the literature review include morbid obesity, health problems associated with obesity, metabolic changes, mortality, effects of weight loss and psychosocial corollaries associated with obesity. Current theories concerning the etiology of obesity and treatment failure for obesity are also discussed. Gastric stapling surgical procedures are explained in the text and illustrations provide further

clarification. Patient selection and surgical outcomes follow the explanation of the surgery. The last section of the literature review discusses the health locus of control conceptual framework, compliance behaviors and locus of control in weight loss programs.

Morbid Obesity

Prevalence

Morbid obesity, defined as 100 pounds or 100% over ideal body weight, is becoming a major health problem in most developed countries (Buckwalter, 1981; MacArthur et al. 1981; Stark, Atkins, Wolff & Douglas, 1981; Sundberg, 1978). Reporting the statistical prevalence of morbid obesity is difficult due to an inadequate number of surveys. Although, some studies report the prevalence of obesity termed 'severe' (Abraham & Johnson, 1980) no reports of the prevalence of morbid obesity are available. The Health and Nutrition Examination Survey (HANES) of 1971 - 1974 reports the following: (a) "among men ages 20 to 74 years, 4.9% or an estimated 2.8 million were 'severely' obese (30% above relative desirable weight)", and (b) "among women the corresponding figure was 7.2%, or estimated 4.5 million were 'severely obese' (50% above relative desirable weight)" (Abraham & Johnson, 1980, p. 366).

Some authors have attempted to estimate the prevalence of differing degrees of obesity. Sundberg (1978) estimated the prevalence of obesity to be 30% of the population or 60 to 70 million Americans. However, obesity was not qualified by percentage overfat.

Boehmer and Turk (1981) estimated that 29% of middle aged men and 40% of middle aged women were obese. Adler and Gosnell (1982) estimated 7 million American were severely obese, 13 million moderately obese and 80 million were just overweight. Their obese descriptors were not qualified by percentage overfat. Pender (1982) estimated that two out of every five Americans are 30% or more overweight and 60 to 70 million weigh more than they should to maintain optimum health. Finally, Miller (1983) estimated that one-third of middle aged Americans are 20% overweight and the overwhelming majority are women.

Health Problems Associated with Obesity

Morbid obesity is not only a disease in itself but acts as a catalyst to a host of other health disorders and is responsible for a reduction in life expectancy (Boehmer & Turk, 1981; O'Leary, 1980; Wooley, Wooley & Dyrenforth, 1980). The role that obesity plays in the development of cardiovascular disease has been well documented (Buckwalter, 1981; Gordon & Kannel, 1976; MacArthur et al. 1981; Mahan, 1979). The increased fat deposits in obese individuals lead to greater perfusion needs of the vascular system which results in an increased cardiac output with both greater pulse rate and stroke volume (Boehmer & Turk, 1981). This situation may bring about a variety of cardiac disorders (Boehmer & Turk, 1981). Consequently, as the percentage of overfat increases so does the risk of developing cardiovascular disease (Mahan, 1979).

A variety of other health disorders have also been associated with morbid obesity. As overfat increases so does the incidence of

diabetes mellitus (Buckwalter, 1981; Leon, 1980; MacArthur et al., 1981; Mahan, 1979; Sundberg, 1978). The incidence of hypertension increases with percentage overfat (Buckwalter, 1981; MacArthur et al., 1981; Mahan, 1979; Sundberg, 1978). In fact, in men, for each 10% gain in weight a corresponding 6.6 mm Hg rise in blood pressure has been reported by Mahan (1979). The corresponding figure for women was half the rise seen in men (Mahan, 1979). Respiratory problems and a greater incidence of gallstones have been associated with the increased morbidity for the morbidly obese (Boehmer & Turk, 1981; MacArthur et al., 1981; Mason, Printen, Blommers, Lewis & Scott, 1980). The morbidly obese condition is correlated with an increased incidence of menstrual irregularities (Buckwalter, 1981; Mahan, 1979). Intertriginous dermatitis (chafing skin) and musculoskeletal disorders are associated with the condition (Buckwalter, 1981). Garrow (1980) adds degenerative disease of the weight bearing joints to the list of liabilities associated with morbid obesity. Ovarian dysfunction and endometrial cancer are additional maladies impairing the health of the morbidly obese (Mahan, 1979). Lastly, arthritis, hernias and vascular insufficiency (stasis ulcers) are reported with morbid obesity (Boehmer & Turk, 1981).

Metabolic Changes

A variety of metabolic changes have been reported to accompany being overfat. Mahan (1979) reported high blood levels of insulin, lipids and uric acid occurring with weight gain. Impaired glucose tolerance has been reported by both Boehmer and Turk (1981) and

Mahan (1979). Mahan (1979) found that in men for each 10% gain in weight an average "2 mg/dl rise in blood glucose and 11 mg/dl rise in blood cholesterol occurred" (p. 233). In women, the corresponding figures were half those recorded for the men (Mahan, 1979).

Mortality

Epidemiologic data strongly suggests that mortality accelerates as the percentage of overfat becomes more severe (Festing, 1979; Van Itallie, 1980). Mild obesity (less than 227 lbs.) is associated with a reduction in life expectancy by two years (Festing, 1979). Severe obesity (315 - 333 lbs.) leads to a decrease in life expectancy between 9 and 12 years (Festing, 1979). The morbidly obese have a 12% higher mortality rate than their non obese counterparts (Van Itallie & Burton, 1980). The literature also reports that the mortality rate for overweight males is considerably higher than for overweight females (Van Itallie, 1980). Principally, the severely obese die from heart disease, stroke, diabetes mellitus and digestive disorders (Abraham & Johnson, 1980). The literature indicates that mortality figures are reversible. Garrow (1980) has reported that reduction of weight to the desirable range greatly decreases the mortality rate.

Effects of Weight Loss

Weight loss has led to significant reductions in the medical problems associated with morbid obesity. Drastic loss of weight has been associated with both reduced insulin requirements in diabetes and marked decrease in hypertension (Felder & Amaral, 1981;

Mason et al., 1980). In addition, cardiorespiratory function improves with weight loss (Felder & Amaral, 1981; Mason et al., 1980). Musculoskeletal symptoms and joint diseases also improve as weight is reduced (Felder & Amaral, 1981; Mason et al., 1980). Lastly, improvements in skin disease and varicose ulcers are seen with weight reduction (Felder & Amaral, 1981; Mason et al., 1980).

Psychosocial Corollaries Associated with Obesity

In attempts to compile psychosocial knowledge related to obesity, researchers have looked for variables that suggest obese individuals share common personality characteristics. Generally, the results from these studies have been disappointing (Mitchell, 1980). Common personality factors have not been identified for obese individuals (Plutchik, 1976). In fact, anyone who works with the obese will be aware of the wide range of variation in the psychological makeup of these individuals (Garrow, 1980). While psychosocial factors play an important role in obesity, it has not been possible to identify a psychological profile which typifies all obese individuals (Sundberg, 1978). Hutzler, Keen, Molinari and Carey (1981) caution that obesity is not a unitary syndrome and that it would be advantageous to study specific types of obese individuals. They further caution that results obtained from studies of slightly overweight college students cannot be generalized to the clinically obese, or particularily to the chronic morbidly obese.

The majority of research examining personality factors of the overweight has been with obese subjects and little research has been

conducted specifically on morbidly obese populations. Consequently, the literature review consists mostly of results relating to the obese but one cannot assume this is generalizable to the morbidly obese.

Discussing psychological factors in relation to obese individuals is not meant to imply that the obese are any more or less psychologically disturbed than the general population (Sundberg, 1978). In fact, reports on mental health and obesity indicate the obese are surprisingly well adjusted despite their massive size (Adler & Gosnell, 1982). Most authors agree that the obese do suffer psychologically from their massive size (Leon, 1980; MacArthur et al., 1981; Sundberg, 1978; Wooley et al., 1980). Wooley et al. (1980) and Hiller (1981) suggest that the obese have personality characteristics similar to minority group members. McCall (1973) in reviewing personality traits of the obese, raised the important unanswered question: "are the psychological differences that distinguish the obese from thin individuals antecedent or consequential to obesity?" (p. 36).

Compiling results from studies of the obese has not provided a consensus of information helpful for increased understanding and efficacy in treatment. According to Mitchell (1980) there is a lack of agreement regarding the effect of emotional arousal on eating behavior. Pudel (cited in Mitchell, 1980) reported increased eating behavior from moderate arousal. Schachter (cited in Mitchell, 1980) reported that the obese are more influenced by environmental (external) cues than by the state of their emotions (internal cues). The researcher advocating the latter view, postulated that excessive eating resulted

from increased responsiveness to time of day, availability of food, effort required to obtain food and its palatability.

Although debate exists as to whether or not obese individuals eat more than their nonobese counterparts, they do eat more than their caloric nutritional requirements. Recent observational studies have failed to identify the existence of an eating style specific to the obese which substantiates the stereotypic description of the obese as gluttons (Wooley et al., 1980). Stunkard and Koch (1964) studied kyrograph tracings (gastric pressure tracing recording gastric motility) along with subject reported hunger for 17 obese and 18 nonobese women. Most of the obese women failed to correlate gastric motility and hunger ($p > .05$). The authors concluded that obese women have a strong bias for denying hunger.

The stereotypic misconception that the obese are psychologically disturbed has not been substantiated by research. Hallstrom and Noppa (1981) studied personality traits, social factors and incidence of mental illness in obese women ($N = 800$). The subjects aged 38, 46, 50 and 54 had a weight index calculated (range 119 - 210) which demonstrated a high correlation to body fat mass ($r = .85$). Personality traits were measured by the Eysenck Personality Inventory and Cesarec - Marke Personality Schedule test batteries. Mental illness information and social data were gathered through personal interviews. There were no significant differences between obese and nonobese women in the presence of mental illness. The demographic factors of low social class and low performance in school were

significantly correlated with obesity ($p < .05$). The authors concluded that obesity was not a strong predictor of psychiatric illness in middle aged women.

In a second study of the same obese women (N = 712) Noppa and Hallstrom (1981) examined the relationship between body weight change and various psychosocial variables during a six year follow-up period. In mental health measures, women who gained 5 kg or more were higher in degree of psychiatric disability ($p < .05$) and depth of depression ($p < .05$). The personality characteristic of order on the Cesarec - Marke Personality Schedule was significantly higher ($p < .01$) for women who had gained 5 kg or more. Extraversion and sociability were not significant in predicting weight gain.

Research involving morbidly obese patients scheduled for gastric bypass surgery has revealed information specific to that population and situation. Mitchell (1980) in discussing data from his unpublished research reported that these morbidly obese subjects (no age, sex or number documented) showed no response, no change in heart rate or skin conductance, when shown high and low anxiety pre-surgical films. However, these same subjects experiences with previous hospitalization and surgery did influence their anxiety level and eating behaviors.

Hutzler et al. (1981) administered the Minnesota Multiphasic Personality Inventory (MMPI) to 84 gastric stapling patients preoperatively. Both male (N = 16) and female (N = 68) patients scored low on control and conformity scales. The male patients scored high on impulsivity, ego strength and were interested in arousal seeking.

Female patients were more passive, immature, lacked psychological sophistication and were less likely to express hostility in a direct manner. Generally, the MMPI scores were similar to addictive populations. However, gastric stapling patients scored lower on depression and did not indicate the cyclic nature associated with alcoholics (Hutzler et al., 1981).

Several social and familial factors have been identified as correlates of obesity. The lower socioeconomic class is more likely to develop obesity than the upper class (Hallstrom & Noppa, 1981; Khosla, 1981; Plutchik, 1976). The caloric intake of husbands and wives tend to be correlated (Plutchik, 1976). And, the presence of familial obesity influences the occurrence of obesity in children. Plutchik (1976) in reviewing the literature reporting incidence of obesity in children reported that 9% of children from nonobese parents were obese while a marked 40% of children from obese parents were obese. Even more remarkable was the figure indicating that 80% of obese children had two obese parents (Plutchik, 1976).

An additional factor that appears in the literature on obesity is gender. Stark, Atkins, Wolff and Douglas (1981) found the prevalence of overweight in females was greater than that in males during childhood and adolescence. In a longitudinal study of 5362 children they reported prevalence of overweight (greater than 20% ideal body weight) as: (a) 1.7% and 2.9% in boys and girls respectively at age 6, (b) 2.0% and 3.8% at age 7, (c) 6.4% and 9.6% at 11 years, (d) 6.5% and 9.6% at 14 years, (e) 5.4% and 6.5% at 20 years, and (f) 12.3% and

11.2% at 26 years. The risk of being overweight as an adult related positively to the degree of obesity as a child.

As previously stated, Abraham and Johnson (1980) reported an estimated 4.5 million women are severely obese compared to an estimated 2.8 million men, aged 20 - 74 years. The overwhelming majority of obese individuals seeking help with weight reduction through gastric stapling surgery are women. The following figures describe the percentage of women reported in groups of individuals electing gastric stapling surgery: (a) 87% of 80 patients (Halmi, Stunkard & Mason, 1980), (b) 86% of 200 patients (Smith, 1981), (c) 100% of 20 patients (Saltzstein & Gutmann, 1980), and (d) 81% of 330 patients (Gomez, 1980).

New to the literature identifying determinants of obesity are smoking habits. Khosla and Lowe (1971) reported that nonsmokers weighed more than smokers. The investigators also found that as age increased the weight of the nonsmokers also increased (Khosla & Lowe, 1971). From a sample of 10,482 men, nonsmokers were 5 pounds heavier than smokers at age 25. Between the ages 45 to 64 the weight difference had increased to 15 pounds (Khosla & Lowe, 1971). In addition, smokers were generally 15 pounds greater than ideal body weight and nonsmokers were 30 pounds greater than ideal body weight (Khosla & Lowe, 1971). The investigators postulated that smoking habits could be an important predictor of future obesity.

Some studies have attempted to identify factors associated with the ability to maintain weight loss.

Hartz, Kalkhoff, Rimm and McCall (1979) in a study of 175 severely obese women, 78% greater than ideal body weight, found three factors correlated with weight maintenance. Those factors were control and social responsibility as measured by the Minnesota Multiphasic Personality Inventory and combining timing of strong appetite with meals. Individuals with these three factors were able to maintain a 15 pound weight loss for 15 to 24 months after completing a weight reduction program. McCall (1973) in a study of 250 obese women in a Take Off Pounds Sensibly Program (TOPS) used the Minnesota Multiphase Personality Inventory to identify differences between subjects who were able to lose weight and those who were not. The women having difficulty with maintaining weight loss within 5% of ideal body weight for six months showed more "body overconcern, psychic hurting, somatization, rebelliousness, compulsive and rumative tendencies and bizarre or confused thinking" (McCall, 1973, p. 35). In addition, these women scored higher on "feminine dependence, touchiness and psychological restlessness" when compared to scores of the women who were able to maintain weight loss (McCall, 1973, p. 35). Finally, Stein, Hassanein and Lukert (1981) in a study of obese subjects 20% to 132% over ideal body weight participating in a hospital sponsored weight loss program identified demographic factors associated with predicting success with weight loss. Subjects (N = 63, 81% female) who were "caucasian, male, young, single and older at the onset of obesity" had the greatest weight loss (Stein et al., 1981, p. 2034).

It is important to note that obesity becomes a social problem for the individual (Hiller, 1981; MacArthur et al., 1981; Sundberg, 1978; Wooley et al., 1980). With the prevailing negative stereotype attached to obesity, the stigma of being overfat is stringent and associated more with women than men (Hiller, 1981). Most people view the obese as deviant and the obese condition as caused by self indulgence and laziness (Hiller, 1981). In addition, most thin people view the obese, especially the morbidly obese as eating much more than other people (Wooley et al., 1980). Even children view obese children as ugly, sloppy, naughty and lonely (Wooley et al., 1980). The obese, as a result, are subject to discrimination by the thin population (Wooley et al., 1980). The discrimination can permeate interpersonal relationships such as companionship, dating, marriage, hiring practices affecting employment and acceptance into college programs (Wooley et al., 1980). Some authors suggest these factors result in the obese having personality characteristics similar to minority group members (Hiller, 1981; Wooley et al., 1980).

Etiology of Obesity

Until recently obesity was dealt with almost exclusively as a psychological problem (Goodhart & Shils, 1976). The treatment rationale was based on one simple assumption: obesity is due to overeating. And, overeating is due to lack of self-control or to serious personality abnormalities. Recent literature describes obesity

as a complex disorder incompatable with oversimplification (Goodhart & Shils, 1976). In fact, current theories suggest a range of factors involved in the etiology of obesity.

Genetic and Cultural Factors

There may be a genetic component in familial obesity. It is a well established fact that obesity tends to recur in families. Goodhart and Shils (1976) in a study of 1000 obese patients reported 73% had one or both parents obese and most were second or third generation born Americans lending strong support for the genetic influence. Goodhart and Shils (1976) caution that this fact is difficult to substantiate because ethnicity interacts with genetics.

Psychological Factors

Two psychological theories exist concerning the etiology of obesity. The first theory suggests the relationship between mother and child to be connected with the development of obesity. In this theory, mother gives food to relieve distress and give support. Consequently, the child becomes unable to distinguish between emotional stress and hunger (Mitchell, 1980). The second theory is called the psychosomatic theory of obesity. This theory suggests that hunger is a learned drive, subject to a variety of external stimuli and provoked by feelings of fear, loneliness and unworthiness (Mitchell, 1980).

The onset of obesity in some individuals can be associated with emotional trauma (Hibscher & Herman, 1977). It is usually associated

with some particular stress period and can be either self limiting or lingering in nature.

Lifestyle Factors

The nature of ones diet, along with frequency and type of exercise have an impact on obesity. Most daily diets tend to be a concentrated source of calories and most lifestyles too sedentary to burn off the excessive calories (Miller, 1983).

Physiological Factors

Physiological theories addressing the cellularity of adipose tissue have attempted to explain the etiology of obesity. Mahan (1979) suggests that in some individuals obesity is characterized by hyperplasia or the presence of a greater number of adipose cells than their nonobese counterparts. According to this theory, obesity that has an adult onset usually involves enlargement of fat cells and the fat distribution centralizes on the trunk (Mahan, 1979). For women, adult onset obesity frequently occurs with pregnancy (Mahan, 1979).

Two types of obesity, regulatory and metabolic have been identified in the literature. Regulatory obesity refers to an impairment of the mechanism regulating food intake (Goodhart & Shils, 1976). In this type of obesity there may be a malfunction associated with the hypothalamus. The hypothalamus is the area of the brain responsible for interpretation of signals indicating if hunger or satiety should prevail (Kolata, 1982; Levine & Morley, 1983). In contrast to regulatory obesity, metabolic obesity refers to an

abnormality in the metabolism of fats and carbohydrates (Goodhart & Shils, 1976). An individual may become fat even though overeating is not present.

Brown adipose tissue, fat tissue with an important role in metabolic efficiency in obesity, has been theorized to influence the development of obesity (Bray, 1982). In this theory, the amount of brown tissue may be less or defective in the obese, thus creating a decrease in energy expenditure (Bray, 1982).

Bennett and Gurin (1982) have suggested that starving fat cells may cause hunger. According to the authors, during weight loss the adipose cell size decrease but the number of cells does not and the starving cells cause extreme hunger. This hypothesis is supported by the 'Set Point Theory'. Set Point is described as a metabolic effort to keep ones weight at a predetermined point (Bennett & Gurin, 1982). Set Point will keep some individuals very overfat and others within or below ideal limits. Any deviation from Set Point will result in the body's attempt to get back to the previous weight, which could help explain why many individuals experience weight gain after dieting (Bennett & Gurin, 1982).

Obesity Treatment Failure

Generally, obesity has failed to respond to a variety of treatment methods. Diets, hypnosis, behavior modification, drugs, group therapy and even jaw wiring have failed to produce long term weight maintenance for the obese (Kark, 1980). Stein et al. (1981) have summed up the state of the art in treatment by saying "the treatment of obesity has

been and still remains one of the most challenging areas of concern" for health care professionals (p. 2041). Stein et al. (1981) further suggest that most obese people do not enter treatment and of those who do, most will not stay. And, of those who do remain, most will not lose much weight. Finally, Wooley et al. (1980) found that losses maintained for a number of months are not well maintained over the long run.

Morbid obesity has responded with even less success to treatment modalities. The prospect for successful weight loss from medical treatments (non-surgical) is not very encouraging. Some authors have attempted to estimate the medical treatment failure rate since no statistics exist for morbid obesity. Wooley et al. (1980) reported that most morbidly obese individuals are successful at losing all or most of their excessive weight at one point in their lives, however, are not able to maintain the loss and frequently regain back to their original weight or even above. Van Itallie and Burton (1980) report that only one-third of morbidly obese individuals remain in traditional medical treatment programs long enough to lose a significant portion of their excess weight, up to two-thirds present weight. Of those who remain in treatment long enough to lose weight only one in five will be able to maintain the loss for a significant length of time (Stunkard, 1981). Eckhout (1979) estimates that medical treatment for morbid obesity fails for 80% of the patients. Howard & Mendeloff (1980) suggest that the failure rate may be nearer to 90%. Most authors agree that the medical management of morbid obesity has been unsatisfactory

(Eckhout, 1979; Howard & Mendeloff, 1980; MacArthur et al., 1981; Van Itallie & Burton, 1980; Wooley et al., 1980). The inadequacy of medical treatment has resulted in the development of gastric surgical procedures designed to assist the morbidly obese in what is hoped to be permanent weight loss (Van Itallie & Burton, 1980).

Gastric Stapling Surgery

Gastric stapling surgery refers to two procedures, gastric partitioning and gastroplasty. Both surgeries facilitate weight loss by reducing the volume capacity of the stomach and by enhancing satiety (Felder & Amaral, 1981). Normal digestion and absorption are maintained with both procedures (Felder & Amaral, 1981).

Surgical Procedures

Gastric stapling surgery divides the stomach into a small upper segment and a larger lower segment (Eckhout, 1979; Felder & Amaral, 1981). The upper segment is stapled into a 30 to 50 cc pouch limiting the amount of food that can be consumed. Food digestion takes place in the small upper stomach while the larger lower stomach remains viable but is no longer used in the digestion process (Felder & Amaral, 1981).

The stapling process leaves a small stoma (opening) between the upper and lower stomachs in gastric partitioning (Figure 1) (Eckhout, 1979). The stoma between stomachs is 12 mm (or 1.2 cm) in diameter and is usually reinforced with polypropylene thread to prevent stretching (Eckhout, 1979). The small stoma slows the rate at which food enters

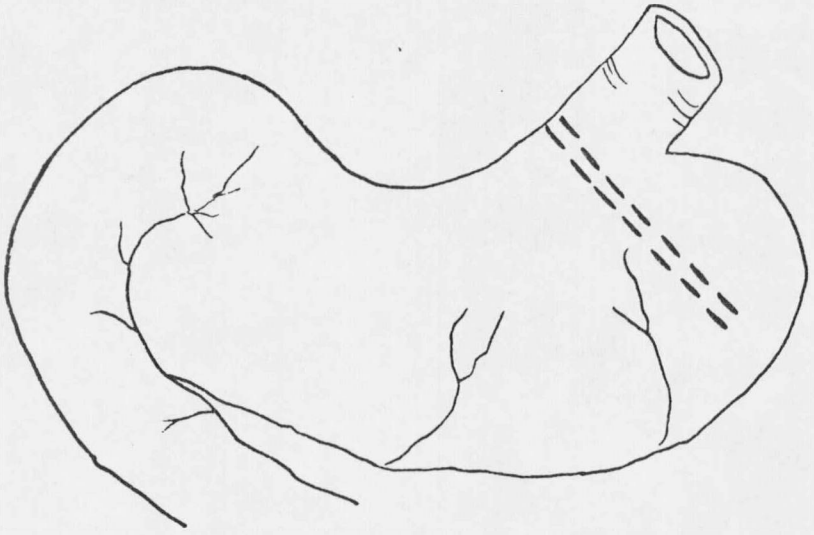


Figure 1. Gastric partitioning procedure.

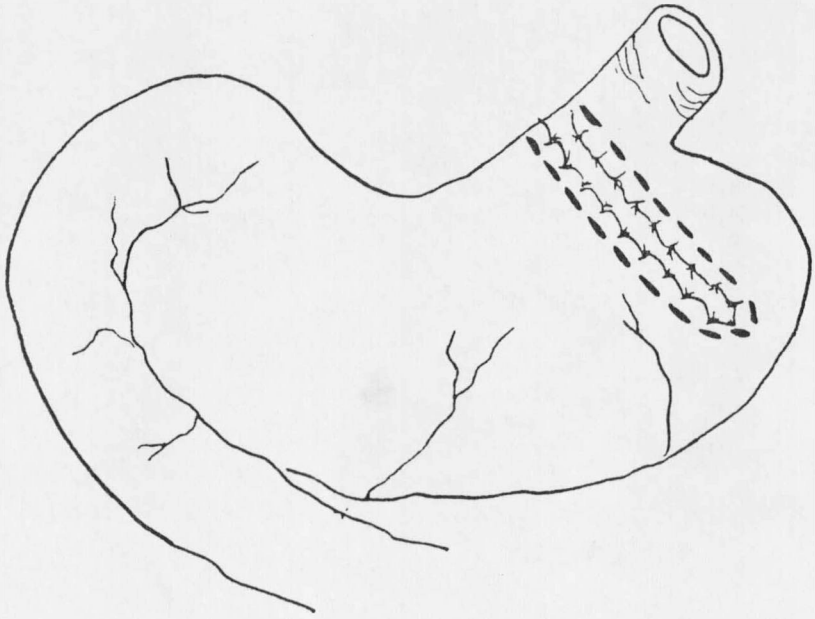


Figure 2. Gastroplasty procedure.

the remainder of the gastrointestinal tract leaving the patient with a full feeling for a longer period of time (satiety).

In the gastroplasty procedure (Figure 2), the stomach is surgically separated between staple lines (Felder & Amaral, 1981). In both gastric partitioning and gastroplasty, food passes through the entire stomach, duodenum and small bowel allowing normal digestion and absorption to take place (Bukoff & Carlson, 1981).

Forty-eight hours after surgery the patients are started on 30 cc's of water, juice or milk every 30 minutes (Buckwalter, 1981). Within four days a pureed diet of meats, fruits and vegetables is started and gradual return to a regular diet occurs within three months (Buckwalter, 1981).

Approximately one-third of the patients have mild vomiting early in the post operative period (Eckhout, 1979). The vomiting is generally due to overeating and the patients soon learn to remedy this by limiting the volume of food intake. Weight reduction begins immediately and continues for 12 to 24 months before stabilization occurs (Eckhout, 1979). Successful patients have lost up to 60% of their excess weight in the first year (Boehmer & Turk, 1981).

The average length of hospital stay following surgery is seven days with only one in ten patients staying longer due to complications (Buckwalter, 1981; Eckhout, 1979; Felder & Amaral, 1981). Due to the short hospital stay, the majority of postoperative recovery occurs at home, away from health care professionals. It is during this period of recovery that the eating behavior changes must occur. The patients

must also remain on very low calorie diets (sometimes 600 to 1000 calories per day) for many years or in some cases for the remainder of their lives (Bukoff & Carlson, 1981).

Surgical Outcomes

Documentation of weight loss differs among authors (Boehmer & Turk, 1981; Bukoff & Carlson, 1981; Felder & Amaral, 1981; Gomez, 1980; MacArthur et al., 1981; Quaade, Backer, Stokholm & Andersen, 1981; Smith, 1981). None of the studies reported a percentage of patients termed as successes or failures. Most studies reported only the average patient weight loss. And, no studies reported following their group of patients for more than one year.

For example, Gomez (1980) reported on three groups of patients having received gastric stapling surgery. The first group of 48 patients lost an average of 73 pounds in 12 months with the range varying from 21 to 170 pounds. The second group, consisting of 22 patients, lost an average of 74 pounds in 9 months with a range of 32 to 137 pounds. The third group of 52 patients lost an average of 64 pounds in 6 months with a range of 30 to 110 pounds.

In another study, Boehmer and Turk (1981) reported that for 300 patients the average weight loss was 60% of excess weight in the first year. Bukoff and Carlson (1981) reported an average weight loss of 103 pounds in 12 months with a range of 58 to 184 pounds for their 61 patients. MacArthur et al. (1981) reported gastric partitioning surgery was satisfactory with weight loss falling within the range of 30 to 35% of the original weight. Finally, Quaade et al. (1981)

reported an average 66 pound weight loss for 6 patients after 3 months.

Most literature stresses the important technical (surgical) considerations that must be met for the patient to achieve early satiety and long term weight loss. The technical considerations necessary for successful weight loss are: (a) small gastric pouch, (b) secure staple line, (c) small stomach, and (d) prevention of stoma enlargement (Buckwalter, 1981). None of this literature discusses patient compliance factors that may be influential in achieving or maintaining weight loss (Boehmer & Turk, 1981; Buckwalter, 1981; Eckhout, 1979; Felder & Amaral, 1981; Gomez, 1980; Hallberg, 1980; Mason et al., 1980; O'Leary, 1980; Smith, 1981). In fact, a view held by one surgeon is that the principle merit of the surgery is to force the morbidly obese patient to eat less, creating a caloric deficit without having to rely upon the patient adhering to a reducing diet (Garrow, 1980).

In contrast, Buckwalter (1981) emphasized that the principle merit of gastric surgery is to compel the patient to break the compulsive eating habits, with the patient's compliance playing a major role in successful weight loss and maintenance. He stressed the importance of the first three post-surgical months for the patient to establish a new concept of eating. According to Buckwalter (1981) proper management of the patient should include both preoperative and postoperative dietary counseling where the patient would fully understand the necessity of changing problem eating habits. He further

suggested that upon leaving the hospital, the patient must eat only three meals a day with no additional snacking. Eating slowly, chewing thoroughly, along with obeying signals from the stomach that a sufficient amount has been eaten are important to a successful change in eating habits. An additional important contribution the patient must make to the weight loss effort is to develop an active lifestyle to include regular exercise (Buckwalter, 1981).

Documentation on the percentage of surgical patients failing to achieve or maintain weight loss is nearly nonexistent. Only three studies were located which addressed this issue at all. Andersen, Backer, Stokholm, and Quaade (1984) compared the weight-reducing effect of diet plus gastric stapling with diet alone for 60 patients greater than 60% their ideal body weight. The average weight loss was 57.4 pounds for the gastric stapling group and 48.4 pounds for the dieting group. After 18 months the diet group regained almost all the lost weight and the gastric stapling group had regained 22 pounds ($p < .05$), about half their weight loss. Therefore, after 18 months the average weight loss for gastric stapling patients was about 25 pounds. Buckwalter (1981) estimated approximately one third of gastric stapling patients have no difficulty losing and maintaining weight loss. Following surgery, these patients lose the desire to eat compulsively and excessively. The other two-thirds of the patients continue to wrestle with the problem appetite and eating habits which existed prior to surgery and may fail to obtain a satisfactory weight loss (Buckwalter, 1981). MacArthur et al. (1981) estimated 20 to 25% of the

patients fail to obtain a satisfactory weight loss. According to Buckwalter (1981) most studies fail to emphasize the fact that it is possible to 'out eat' the surgery and gain weight. Equal in importance to the technical surgical considerations are the patient's attitude and compliance with caloric restriction and the necessity of changing eating behaviors following surgery (Buckwalter, 1981). Only with the patients active participation will weight loss be achieved (Buckwalter, 1981).

The literature indicates many surgeons view the surgery in favorable light. However, some caution it still must be considered experimental or investigational (Andersen et al., 1984; Hallberg, 1980). The long term weight loss effects have not been reported in the literature and many surgeons do not follow patients beyond one year. Surgeons have been advised to limit the number of surgeries until the basic pathophysiology and psychology underlying morbid obesity are more thoroughly understood (Hallberg, 1980). In addition, surgeons have been advised to cooperate with researchers in building a body of knowledge relating metabolic, physiologic and behavioral factors to morbid obesity and weight loss (Hallberg, 1980).

Patient Selection

Most surgeons agree on the selection criteria for gastric stapling surgery. The criteria include: (a) having been morbidly obese for several years, (b) unsuccessful previous weight loss attempts, and (c) the absence of medical contraindications such as alcoholism and

intractable peptic ulcer disease (Eckhout, 1979; Gomez, 1980; Howard & Mendeloff, 1980; Kark, 1980; MacArthur et al., 1981).

However, controversy exists over the importance of evaluating certain patient personality characteristics preoperatively. On one hand, according to MacArthur et al. (1981) the present selection criteria are inadequate, especially in light of the percentage of patients who fail to obtain satisfactory weight loss. The psychological evaluation of the morbidly obese has not been thoroughly examined, and the authors recommend psychological assessment become a significant part of the patient evaluation process prior to surgery. Stanfield (1981) lends support to this view by advocating patient motivation and coping capacity, along with commitment are important to preoperative evaluation. Gomez (1980) supports intensive inquiry into previous psychiatric history. Stellar and Rodin (1981) emphasize the importance of identification of factors related to weight change outcomes to facilitate an appropriate patient selection process.

On the other hand, Howard and Mendeloff (1980) advocate no psychological contraindications exist short of overt psychosis. Stanfield (1981) screened 100 preoperative gastric stapling patients by psychiatric interview and found psychiatric assessment was unnecessary (only two patients were rejected, one a hypomanic and the other ambivalent about surgery). However, Stanfield (1981) did not correlate his psychiatric assessment with weight change outcomes following surgery.

Conceptual Framework

The conceptual framework for this study is derived from studies of health locus of control and compliance behaviors. Frequently, a challenging area for nursing intervention involves patient compliance behaviors in response to necessary therapeutic regimens or changes needed to improve health. Compliance behaviors refer to the actions of a patient who has assumed tasks comprising the therapeutic regimen (Shillinger, 1983). For the purposes of this study, health locus of control refers to a patient's perception of control over health and its relationship to health related behaviors (Shillinger, 1983). In the case of gastric stapling patients, therapeutic alliance and adherence to nutritional regimes along with making major changes in eating behaviors are essential to successful weight loss, weight maintenance and subsequent improved health. The following paragraphs describe the association believed to exist between compliance behaviors, locus of control and health outcomes.

Shillinger (1983) identified three terms describing behaviors of patients who comply with therapeutic regimes. These terms include "compliance, adherence and therapeutic alliance" (Shillinger, 1983, p. 58). First, in the patient who demonstrates compliance behaviors Shillinger (1983) suggested that coercion by health care personnel may have been influential in bringing about the behavioral changes. Second, a patient who demonstrates adherence to a therapeutic regimen has conformed to the standards set by the health care professionals. Finally, therapeutic alliance suggests that the patient has negotiated

the terms that will be undertaken for self-care (Shillinger, 1983). The three compliance behaviors are depicted in the triangle in Figure 3. Coercion, conformity and negotiation represent a continuum that varies depending upon the degree to which the patient makes decisions about health or the degree to which the patient is influenced by others (locus of control). Figure 3 represents this writers graphic idea of Shillinger's (1983) work.

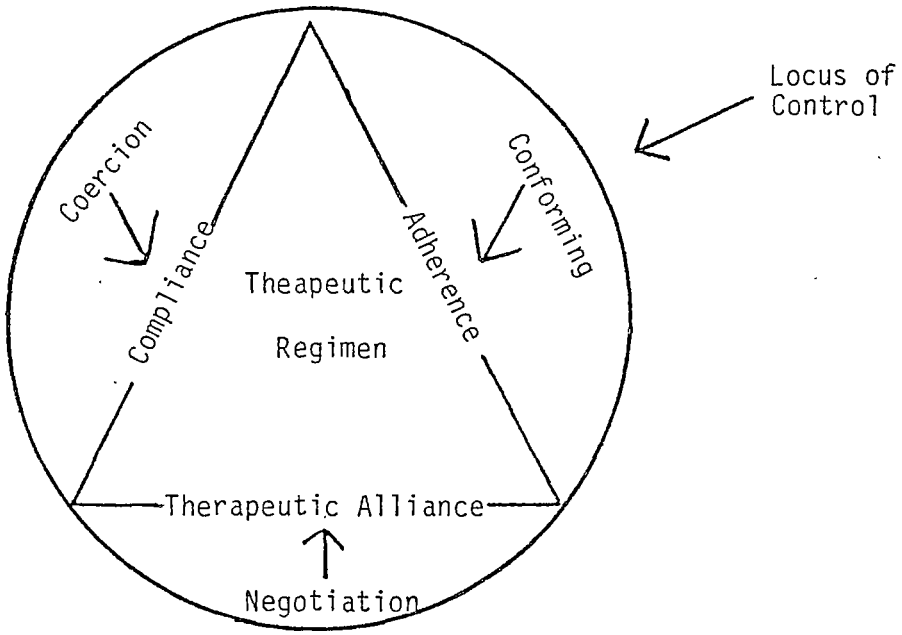


Figure 3. Tasks comprising a therapeutic regimen and influencing factors.

Arakelian (1983) identified three problematic compliance behaviors. These behaviors include "reluctance, reactance and recidivism" (Arakelian, 1983, p. 25). First, reluctant patients are those in the greatest need of health care but do not seek the needed services. These patients comprise the majority of problematic

compliance behaviors. Second, reactant patients are those who exhibit responses to health care measures ranging from recalcitrance to submissiveness. Finally, recidivistic patients backslide and are unable to maintain health care efforts over time (Arakelian, 1983). Arakelian's three problematic compliance behaviors are seen in Figure 4 which represents this writers graphic concept of Arakelian's (1983) ideas.

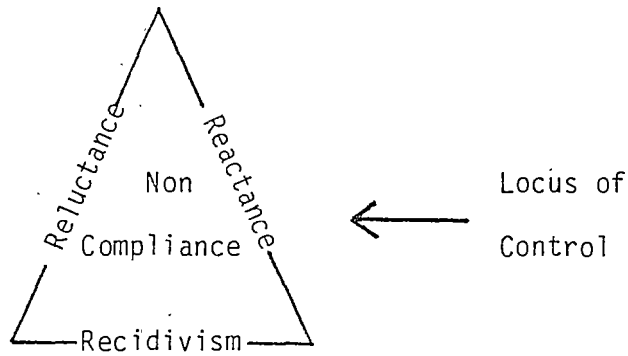


Figure 4. Problematic compliance behaviors.

Arakelian (1983) stressed that compliance behaviors are complex and generally cannot be reduced to a single explanation. However, she suggested that health locus of control determination can provide partial insight into compliance behavior.

Since many health care actions rely directly on the patient's voluntary behaviors, the expectation of control over health is an important consideration for both the patient and health care professional. The patient's perception of control over health influence health care behaviors and subsequent health outcomes.

The locus of control concept was developed from social learning theory (Gierszewski, 1983). In social learning theory, a reinforcement strengthens the expectancy that a particular behavior will again be followed by a reinforcement (Gierszewski, 1983). It follows that the higher the expectancy for reinforcement, the greater the likelihood the behavior will occur again (Gierszewski, 1983). Conversely, failure to receive the reinforcement leads to both decreased expectancy and recurrence of the behavior (Gierszewski, 1983).

Inherent in social learning theory are the concepts of expectancies. Individuals develop both general and specific expectancies regarding reinforcements (Shillinger, 1983). An individual's personal value of the outcome (reinforcement value) along with an estimation of the likelihood of its happening (expectancy) are considered prior to taking a particular action (Shillinger, 1983). For specific actions, chances for success are judged by examining the immediate situation (situational expectancy) (Shillinger, 1983). Lessons learned by past behaviors (generalized expectancy) are considered in the decision making process as well (Shillinger, 1983). The influence of the past (generalized expectancy) influences current perceptions of the situation, meaning of the event and the eventual decision making (Shillinger, 1983). Generalized expectancy is, consequently, very important in determining present behavior (Arakelian, 1983; Shillinger, 1983).

Health locus of control is a generalized expectancy which influences present behavior. Health locus of control refers to the

individual's belief about whether reinforcements (outcomes) are contingent upon their behavior (Shillinger, 1983). Individuals who believe that health outcomes result from forces beyond their control are termed 'externals' (Shillinger, 1983). Individuals who are externals typically perceive health outcomes to either be under the control of powerful others or determined by fate or chance (Saltzer, 1978). Health locus of control is described as "a stable personality factor developed over time and acquired through a series of many social learning experiences" (Shillinger, 1983, p. 58).

Locus of control has consistently been an effective predictor of behaviors (Shillinger, 1983). In situations where "controllability" was missing, individuals perform less competently and become more passive (Shillinger, 1983). In application to health care outcomes, it becomes apparent that allowing the patients to control their environments (controllability) would be beneficial in making successful transitions toward competency. Incorporating patient goals and perceptions into self-care would allow for maximum self-control.

Health locus of control suggests that patients make choices in their behaviors (Shillinger, 1983). Therefore, it is reasonable to expect compliance to be enhanced if clients pursue and learn necessary health care information in addition to utilizing appropriate health care professionals (Arakelian, 1983). In addition, disregarding immediate gratification for more long term health goals would demonstrate an interest in maintaining health (Arakelian, 1983). Therefore, referring specifically to morbidly obese gastric stapling

patients, seeking and learning health care information related to obesity treatment could enhance weight loss success after surgery. Utilizing appropriate health care professionals who can assist during different transitional stages associated with the surgery would enhance and reinforce compliance behaviors and subsequent successful weight loss. Certainly disregarding immediate oral gratification, foods not conducive to weight loss for the long term goals of weight loss, would enhance compliance behaviors and complement health outcomes as well.

In the literature, health locus of control has had direct application to weight control as a predictor of success (Gierszewski, 1983). Internals who comply with treatment and lose weight would most likely continue with the appropriate regimen and be successful (Shillinger, 1983). In addition, internals who made modifications in eating habits and improved in compliance behaviors but were not reinforced by weight loss would be less likely to continue with the necessary regimen. Externals who viewed weight loss as outside of their control would be less likely to have successful weight loss (Shillinger, 1983). In a differing opinion, Gierszewski (1983) suggested that the external who had a strong powerful other or chance component in relation to the internal component may actually be the most persistent with weight reduction measures. She further suggested that a combination of internality and externality may allow for belief in control over weight. This individual may be more open to suggestions by health care professionals and less apt to give up even

if their effort does not result in immediate weight loss success (Gierszewski, 1983).

Health Locus of Control in Weight Loss Programs

Very little is known about the connection between health locus of control and eating behaviors. There is a dearth of reports linking health locus of control specifically to weight loss outcomes for gastric stapling patients. No studies were located in which the subjects were either morbidly obese or gastric stapling patients.

However, several studies were located which examined locus of control in relation to weight loss outcomes for the obese or slightly overweight. Results from these studies were contradictory. For example, O'Bryan (1972) studied 54 women participating in a Take Off Pounds Sensibly (TOPS) program. The overweight women as a group were significantly more external than internal in nature. The external women were also unlikely to attribute their overweight problem to physiological causes. In addition, the external women were more interested in weight loss due to pressure from significant others. Finally, there were no significant differences between the internal and external groups regarding information seeking, learning and use of weight control material. O'Bryan (1972) concluded that both internal and external groups could work toward the solution of a problem when sufficiently motivated and interested. The only real difference between the groups was their source of motivation.

In another study, Balch and Ross (1975) examined the locus of control orientation for 34 females participating in a weight reduction

program. There was a significant correlation between internal locus of control and completion of the program and relative success, weight loss higher than median.

In yet another study, Tobias and MacDonald (1977) determined the locus of control orientation for 55 college females, 10% or more over ideal body weight who volunteered for a weight reduction program. Based on their locus of control orientation the participants were divided into five groups: (a) manual, (b) self-determination, (c) contract, (d) effort control, and (e) no contact control. Participants receiving self-determination weight reduction therapy developed significantly more internal beliefs about weight control over the course of treatment ($p < .05$).

Cohen and Alpert (1978) studied the locus of control orientation for 15 females averaging 63% above ideal body weight in a treatment program for obesity. Findings indicated internality correlated with total pounds lost ($p < .025$) and with percentage of total body weight loss ($p < .05$).

Saltzer (1978) studied 116 college students who stated the intention to lose weight during a semester. There was a positive correlation between internal locus of control and the intention to lose weight ($p < .001$) but no correlation to weight loss outcomes.

Finally, Gierszewski (1983) examined the health locus of control orientation of 46 women in a company weight control program. Internals had less weight loss and more weight gain than either external/powerful others or external/chance individuals.

Summary

Selected aspects of morbid obesity, gastric stapling surgery and health locus of control have been discussed in the literature review. These aspects included prevalence of the morbid obesity state and physical and psychosocial problems associated with obesity. Obesity theory and treatment failure were discussed. Gastric stapling surgery was also examined in relation to operative procedures, patient selection and weight loss outcomes. The health locus of control framework was explained along with a discussion of compliance behaviors. Lastly, locus of control in weight loss programs was reviewed. The object of examining all these topics has been to establish a basis for the use of a descriptive survey to investigate the health locus of control orientation for gastric stapling patients.

CHAPTER 3

METHODOLOGY

This chapter describes the research methodology for determining the health locus of control orientation, reasons for surgery, weight change patterns following surgery and demographic information for gastric stapling patients. Described are the research design, sample selection, human subjects review, setting, data gathering tools and the analysis.

Research Design

A small sample survey research design was used for this study. The descriptive-exploratory design was selected to facilitate examination of specific characteristics of this group since little is known about them. The reader is cautioned that external validity was limited by a convenience selection of accessible groups. Use of a larger percentage or number of the target population was not possible due to the large number of widely dispersed gastric stapling support groups throughout the country and lack of access to location identification.

Subjects

The target population for this study were members of gastric stapling support groups. The subjects participating in this study

consisted of a convenience selection of either former or current members from two gastric stapling support groups. Both groups were comprised of adults (over age 18) who had undergone gastric partitioning or gastroplasty surgery for treatment of morbid obesity. Females predominated the membership in both groups. Persons within the two groups meeting qualifications and willing to participate were accepted in the study.

The first group was comprised of twenty members of a former gastric stapling support group located in a small Western Montana town. The entire population from that group was included in the study. All members had been actively involved in the support group before it stopped having meetings. The group had disbanded following the illness and retirement of the physician who headed the group.

The second group was comprised of thirteen members present at a bi-monthly gastric stapling support group meeting in a large city in Utah. All members present were included in the study. This group was led by a member who had the surgery and successfully kept the weight off.

Protection of Human Subjects

Montana State University's requirements for protection of human research subjects were met. The request form and data gathering materials were submitted to and approved by the Human Subjects Review Committee (see Appendix A).

There were no risks of physical, psychological, social, legal or any other nature for the subjects. Potential benefits for the subjects consisted of participation in the development of a body of knowledge specific for gastric stapling patients seeking help within support groups.

All subjects were assumed to have the ability to give voluntary informed consent which was implied by returning the data gathering materials. Anonymity and confidentiality was assured for all the subjects in the cover letter accompanying the data gathering materials. The study was designed such that all data gathering materials were mailed or administered by the support group leaders at the respective locations and returned to this investigator by mail without names.

Data Collection

Description of the Instrument

Wallston, Wallston and DeVellis' (1978) Multidimensional Health Locus of Control Questionnaire was the instrument used for data collection. The questionnaire was developed by B. S. Wallston, K. A. Wallston and R. DeVellis "to tap beliefs that the source of reinforcements for health-related behaviors is primarily internal, a matter of chance, or under the control of powerful-others" (Wallston et al., 1978, p. 160). Permission to use the Multidimensional Health Locus of Control Questionnaire was requested and granted by the originators of the tool (see Appendix B).

The instrument was identified as the most suitable for objective measure of belief concerning control over health. The instrument, which was developed in the late 1970's has been extensively used and found to have reliability, validity and to be efficient in the use of the subject's time.

The Multidimensional Health Locus of Control Questionnaire, a 36-item rating scale assessed the internal, external/chance and external/powerful-others orientation of personal beliefs concerning control over health. The 36 health related statements were rated by the subjects on a 6-point Likert format response scale. Individual responses to statements were assigned the following ratings: (a) strongly disagree 1, (b) moderately disagree 2, (c) slightly disagree 3, (d) slightly agree 4, (e) moderately agree 5, and (f) strongly agree 6. All items were written in the personal mode and developed for an eighth-grade reading level (see Appendix B).

Three subscales existed within the instrument. The first measured internal beliefs about health by using items 1, 6, 8, 12 and 17. The second subscale measured external beliefs about health influenced by chance using items 2, 4, 9, 11, 15 and 16. The third measured external beliefs about health related to influence by powerful-others using instrument items 3, 5, 7, 10, 14 and 18.

Reliability and Validity

The instrument was developed using a widely divergent group of 115 randomly selected adults (Wallston et al., 1978). The mean age was

42 years, 49% of the subjects were male and 74% had at least some college education (Wallston et al., 1978).

Normal subscale means for the instrument based on the sample of 115 are as follow: (a) internal mean 50.4, (b) external/chance mean 31.0, and (c) external/powerful-others mean 40.9.

The instrument's coefficient alphas for the three subscales based on the sample of 115 by Wallston et al. (1978) are as follow: (a) internal coefficient alpha .859, (b) external/chance coefficient alpha .841, and (c) external/powerful-others coefficient alpha .830. The alpha values reflect a high degree of instrument reliability and internal consistency. Polit and Hungler (1978) assert that coefficient alphas in the vicinity of .60 to .70 are sufficient for making group-level comparisons.

Standard deviations for the same sample of 115 are as follow: (a) internal standard deviation 9.051, (b) external/chance standard deviation 10.204, and (c) external/powerful-others standard deviation 10.048. Polit and Hungler (1978) assert that close standard deviation values indicate means are representative of central tendency with a low degree of distribution variability.

The intercorrelation matrix determinations between sub-scales appear in Table 1. The correlation for the internal subscale and external/chance subscale were negatively correlated indicating an inverse relationship between constructs being measured (Wallston et al., 1978). The internal subscale and external/powerful-others subscale were statistically independent indicating no relationship

between constructs (Wallston et al., 1978). The external/powerful-others subscale and external/chance subscale were positively correlated indicating measures of differing traits (Wallston et al., 1978). The intercorrelation matrix determinations were of a magnitude to support the instrument's construct validity.

Table 1

Intercorrelation Matrix of Subscales

Subscales	Internal	External/ chance	External/ powerful-others
Internal	----	----	----
External/ chance	-.293	----	.204
External/ powerful-others	.124	----	----

Note. From "Development of the Multidimensional Health Locus of Control (MHLC) Scales" by K. A. Wallston, B. S. Wallston and R. DeVellis, 1978, Health Education Monographs, 6, p. 166. Copywrite by K. A. Wallston and B. S. Wallston. Reprinted by permission.

As an indication of predictive validity the instrument developers computed correlations between health status and the three subscales. Health status correlation was statistically significant with the internal subscale ($r = .403$, $p < .001$) (Wallston et al., 1978). The external/chance subscale had a low negative correlation ($r = -.275$, $p <$

.01) with health status, indicating that as belief in chance affecting health increases there is a decline in health status. There was no correlation between health status and the external/powerful-others subscale ($r = -.055$) (Wallston et al., 1978).

The instrument developers assert that use of the Multidimensional Health Locus of Control questionnaire increases the probability of understanding and predicting health behaviors (Wallston et al., 1978). First, persons scoring high on the internal subscale should prefer self-direction in relation to health behaviors (Wallston et al., 1978). Second, persons scoring high on the external/powerful-others subscale should respond favorably to decision-making by health care professionals (Wallston et al., 1978). Lastly, persons scoring high on the external/chance subscale may not be successful with either self-direction or professional direction (Wallston et al., 1978).

The demographic data form was the second instrument used in the study. The demographic data form was written by the investigator and contained eleven questions requiring participants to write in or select an answer. The tool was designed to provide basic demographic information and examine the self-reported weight loss and regain patterns following gastric stapling surgery. The tool also asked the subjects to write in the principle reason for having surgery (see Appendix B).

A panel of five graduate students and three faculty members at Montana State University School of Nursing examined the tool for clarity and content. Changes made in the tool were: (a) the words

morbidly obese were changed to "100 pounds or more overweight" in question 9, (b) the word pattern was changed to "figure" in question 10, and (c) question 11 was changed from a select-an-answer to a write-in for the reason for having surgery.

Independent Study

In order to minimize the possibility of encountering major difficulties with use of the tool with morbidly obese gastric stapling patients, a small scale independent study was conducted. The Multidimensional Health Locus of Control Questionnaire was administered to five willing members of a small local gastric stapling support group. The subjects possessed the same characteristics as the sample groups selected. The subjects understood the tool questions and directions and did not find the questionnaire objectionable. No problems were identified with the tool administration and no revisions were made.

Data Collection Method

The cover letter, questionnaire and demographic data form packets were mailed as a package on December 5, 1983 to the support group leaders at the respective locations. For the small Western Montana town group, the hospital dietician who was the former group leader mailed the data gathering materials, number coded one through twenty, to the twenty members of the former gastric stapling support group in that area. Each former gastric stapling support group member was to

receive a cover letter, questionnaire and demographic data form along with a large stamped and addressed return envelope.

The cover letter explained voluntary participation, the purpose of the questionnaires, assured anonymity and encouraged return of the materials using the stamped envelope provided. Additionally, the letter instructed the subjects that results of the study would be available through the former support group leader and thanked them for their time and cooperation (see Appendix B). The return envelope was addressed to the former support group leader and she noted the return of the number coded data gathering materials.

A follow-up letter requesting return of the completed materials was sent by the former support group leader to thirteen subjects who had not responded within two weeks (see Appendix B). The former support group leader was instructed to return the collected data gathering materials to the investigator in the prepaid mailing envelope.

For the large-city Utah group, the support group leader distributed the data gathering material packets to all willing subjects meeting the criteria during a bi-monthly support group meeting on January 26, 1984. Each packet contained a cover letter, questionnaire and demographic data form. The cover letter explained voluntary participation, purpose of the study, assured anonymity and encouraged participation. Additionally, the cover letter informed the subjects that results would be available through their support group leader and thanked them for cooperation.

The support group leader was instructed to distribute the data gathering material during the opening twenty minutes of the meeting proceeding as if the members were taking a test and not to allow for talking or the asking of questions between members. The subjects were to place the completed materials in the large stamped return addressed envelope provided. The last subject was to seal the envelope and the support group leader was to put the package in the mail following the meeting.

The investigator contacted the two support group leaders by telephone the day the data gathering materials were mailed to give instructions for administration and collection of the packets. One month after initial contact the support group leaders were again contacted by telephone to inquire about progress of the project. No problems were identified or reported however, the support group leader in Utah had not proceeded with the administration of the materials due to two cancelled meetings during the Christmas holidays and a third cancelled meeting due to illness. A third contact to the Utah support group leader occurred one week prior to the next scheduled support group meeting to reinforce distribution and collection procedures.

Data Analysis

Descriptive statistics from the Statistical Package for Social Sciences-X (Nie, 1983) were used to describe and summarize the demographic data collected. The descriptive statistics included means,

standard deviations and ranges. Correlational coefficients were used to describe the relationship between health locus of control orientation and various demographic characteristics.

Inferential statistics also from the Statistical Package for Social Sciences-X (Nie, 1983) were used to determine homogeneity between the two selected samples using the F-ratio in the analysis of variance.

Summary

This chapter presented the research methodology developed for the study. Included were descriptions of design, subjects, protection of human subjects, instruments, previous use of the tool, data collection methods and data analysis.

CHAPTER 4

DATA PRESENTATION

Introduction

The purpose of this study was to describe selected characteristics of gastric stapling patients seeking help within support groups. Two small groups of gastric stapling patients were surveyed by questionnaires that examined demographic characteristics and health locus of control variables.

This chapter presents the demographic and health locus of control data collected. The first section describes and summarizes the demographic characteristics of the two samples of gastric stapling patients. Tables are used to highlight presentation of the results and important aspects of the tables are discussed in the text. The last part of this chapter presents the health locus of control data. Correlations were used in an effort to identify relationships between the health locus of control variables and selected demographic factors. Again, tables were used to highlight presentation of important statistical findings.

Demographic Data

Twenty data gathering material packets were mailed to both the former support group leader of the Montana sample and the current support group leader of the Utah sample. Sixteen completed packets

(80%) were returned from the Montana sample with one additional packet returned through the postal system indicating the subject had moved and left no forwarding address. One of the completed data gathering material packets was not used because the subject had undergone a jejunoileal-bypass operation instead of gastroplasty or gastric partitioning therefore, did not meet the criteria for participants.

Thirteen completed data gathering material packets were returned from the Utah sample. The support group leader indicated the number of members varied with each meeting and attendance could be expected to range from six to twenty. The day the packets were distributed all thirteen members present at the meeting participated (100%). Three completed packets from the Utah sample were not used because the subjects were within a two to twelve day postoperative period and this was judged to be an insufficient amount of time for the body to have responded to the surgical procedure. Table 2 presents the original and corrected response rates for the two samples.

Question number one of the demographic data form asked the subjects to indicate their age. Table 3 presents the age means, standard deviations and ranges by sample location. The mean age of the Montana sample was three years greater than the Utah sample.

The demographic data form asked the subjects to indicate their sex. Both the Utah and Montana sample were predominantly female; 70% and 100% respectively. The actual number of male subjects for the Utah sample was five, however, only three were suitable for the study.

Table 2

Data Gathering Response Rates by Location of Sample

Sample Location	Possible Number of Subjects	Actual Number of Subjects	Packet Return Rate in Percentage	Number of Suitable Subjects	Total Number of Suitable Subjects In Percent
Montana	20	16	80	15	75
Utah	6-20	13	100	10	76

Table 3

Subject Age by Sample Location

Sample Location	Number of Subjects (N)	Mean Age	Standard Deviation (SD)	Age Range
Montana	15	45	7.47	34 - 58
Utah	10	42	7.57	31 - 53

The third question on the demographic data form asked the subjects to indicate how many years had elapsed since the gastroplasty or gastric partitioning surgery. Table 4 presents the data from that question by sample location. At the time of testing, fewer years had elapsed for the Utah sample than the Montana sample. Ninety percent of the Utah sample had undergone surgery within two years or less and one-hundred percent of the Montana sample had undergone surgery two or more years previously.

Table 4

Number of Subjects by Years Since Surgery and Sample Location

Sample Location	N	1 Year	2 Years	3 Years	4 Years
Montana	14	0	2	10	2
Utah	10	5	4	0	1

The fourth and fifth questions on the demographic data form asked the subjects to indicate their pre-surgical and current weight in pounds. The mean pre-surgical weight for the Utah sample was higher than the Montana sample by 29 pounds. The pre-surgical weight range for the Utah sample was larger than the Montana sample. The mean current weight for the Utah sample was higher than the Montana sample by 13 pounds.

When the current weight is subtracted from the pre-surgical weight the resulting number represents the total post-surgical weight loss. The mean weight loss for the Montana sample (66.1 pounds) was less than the mean post-surgical weight loss for the Utah sample (82.2 pounds). Table 5 presents the pre-surgical and current weights in pounds by sample location.

Table 5

Pre-surgical and Current Weight in Pounds by Sample Location

	Pre-surgical Weight (Pounds)			
Sample Location	N	Mean Weight	S.D.	Range
Montana	14	255.3	46.66	170 - 336
Utah	10	284.5	66.42	255 - 445
	Current Weight (Pounds)			
Montana	14	189.2	43.66	170 - 336
Utah	10	202.3	52.32	135 - 300

Question number six on the demographic data form asked the subjects to indicate their lowest post-surgical weight. The Montana sample had a lower mean post-surgical weight than the Utah sample by 20 pounds.

When the lowest post-surgical weight is subtracted from the current weight the resulting number represents the amount of weight that has been regained since the operative procedure. The Montana sample (18.8 pounds) had a higher mean weight regain than the Utah sample (11.9 pounds) despite a lower pre-surgical weight. Table 6

presents the lowest post-surgical weight in pounds and mean weight regain in pounds by sample location.

Table 6

Lowest Post-surgical Weight and Post-surgical Weight Regain in Pounds by Sample Location

Sample Location	N	Mean Lowest Post-surgical Weight (Pounds)	Weight Range	S.D.	Mean Post-surgical Weight Regain (Pounds)
Montana	15	170.4	109 - 260	38.75	18.8
Utah	9	190.4	110 - 300	59.58	11.9

The seventh question on the demographic data form asked the subjects to record their highest post-surgical weight. The Utah sample had a higher mean post-surgical weight than the Montana sample by 29 pounds.

When the highest post-surgical weight is subtracted from the lowest post-surgical weight the resulting number represents the maximum amount of weight that has been regained since the surgical procedure. Table 7 presents the highest post-surgical weight and maximum post-surgical weight regain in pounds by sample location. The Montana sample had a higher post-surgical mean weight regain than the Utah sample. The Utah mean may be skewed because two respondents recorded their pre-surgical weight as their highest post-surgical weight but indicated later in the weight pattern selection that weight regain to

original pre-surgical level had not occurred. In addition, two Utah respondents left the question blank; therefore, the mean was calculated based on eight responses.

Table 7

Highest Post-surgical Weight and Maximum Post-surgical Weight Regain in Pounds by Sample Location

Sample Location	N	Mean Highest Post-surgical Weight (Pounds)	S.D.	Range	Mean Maximum Post-surgical Weight Regain (Pounds)
Montana	15	214.6	51.03	139-315	44.2
Utah	8	243.1	32.3	210-298	52.7

The subjects were asked to indicate their height in inches on the demographic data form. The mean height for the Montana sample was 64.2 with a range of 60 - 72 inches (S.D. 3.27). The mean height for the Utah sample was 65.9 with a range of 58 - 72 inches (S.D. 4.72).

The ninth question on the demographic data form asked the subjects to indicate the number of years they had been 100 pounds or more overweight (morbidly obese). The Montana sample had been morbidly obese for a greater number of years than the Utah sample. The Montana sample had a greater range of years (40) than the Utah sample (20). One of the Montana respondents indicated never having been 100 pounds overweight (thus recorded zero). Table 8 presents the data indicating number of years of morbid obesity by sample location.

Table 8

Number of Years of Morbid Obesity by Sample Location

Sample Location	N	Mean Number of Years	S.D.	Range
Montana	15	18.2	11.60	0 - 40
Utah	10	14.4	6.34	10 - 30

The tenth question on the demographic data form asked the subjects to select one of three figures (A, B, or C) which most closely represented their post-surgical weight change pattern (Appendix B). The first figure (A) represented a steady post-surgical decline in weight. The second figure (B) represented no change in weight following surgery. The third figure (C) represented a steady post-surgical weight loss followed by a steady regain to original weight. The fourth figure selection (D) was labeled as 'other' and asked the subjects to draw-in their own figure representing their post-surgical weight change pattern. Figure D was selected by eight subjects (53%) in the Montana sample and by six subjects (60%) in the Utah sample. Figure B was not selected by any of the Utah subjects (0%) and by only one subject (6%) in the Montana sample. Figure 5 presents the frequencies of post-surgical weight pattern selections by sample location.

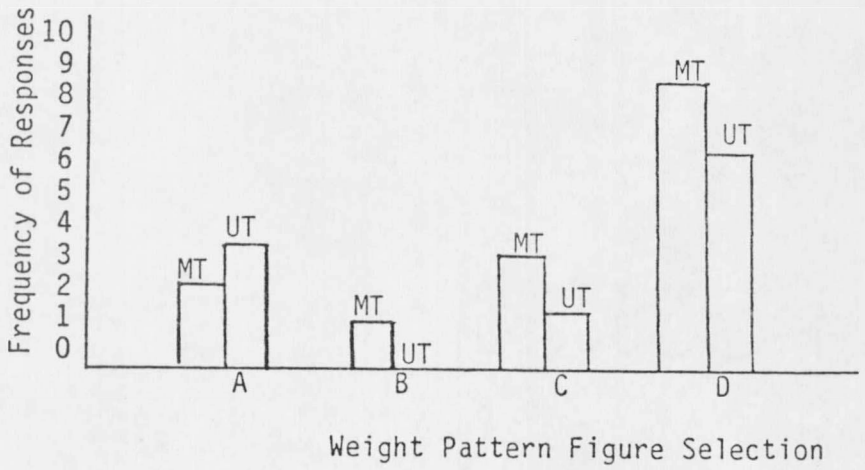


Figure 5. Frequencies of post-surgical weight pattern figure selections by sample location.

Two common drawn-in figures were identified for the selection of figure D. The most frequently occurring figure depicted a steady decline in weight followed by a leveling off or plateau such as in Figure 6.

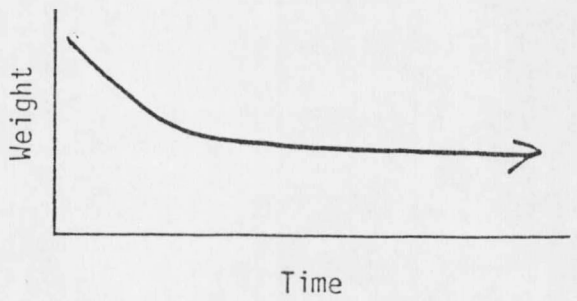


Figure 6. An example of the most frequently drawn-in figure of post-surgical weight change pattern.

Another frequently occurring pattern drawn-in for figure D depicted an overall weight decline but an erratic weight change pattern of frequent gains and losses. Figure 7 represents that pattern.

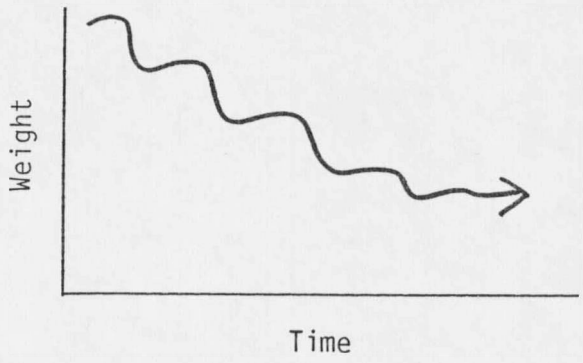


Figure 7. An example of the second most frequently occurring drawn-in figure of post-surgical weight change pattern.

Two respondents drew figures differing from previously represented patterns. One of the figures represented a sharp decline in weight and rapid regain, followed by a leveling off near the pre-surgical weight. The other drawn-in figure represented a small decline or loss followed by a plateauing of weight and then a gradual regain to original weight.

The last question on the demographic data form asked the subjects to identify the reason they had chosen surgery as a form of weight control. Health was indicated as the primary reason for selecting surgery for nine subjects (60%) in the Montana sample and six subjects (60%) in the Utah sample. Self image was indicated as the principle reason for selecting surgery for four subjects (29%) in the Montana sample. One subject in the Montana sample indicated spouse encouragement was the reason for selecting surgery. 'Nothing else worked' was written in by one Montana subject. Desire for improved physical attractiveness was written by one Montana subject. Selecting surgery for the reason that nothing else worked was indicated by two

subjects in the Utah sample. One Utah subject wrote in 'I needed to' and another subject left the question unanswered.

Health Locus of Control Data

The Multidimensional Health Locus of Control Questionnaire asked the subjects to respond to questions which indicated their belief about control over health. Table 9 presents the internal, external/chance and external/powerful-others variables for the two samples and the subjects (N = 115) used for establishing the normative scores for the instrument.

Table 9

Health Locus of Control Orientation Scores for Instrument and Samples by Location

Sample Location	N	Internal Mean	S.D.	External/ Chance Mean	S.D.	External/ Powerful-Others	S.D.
Montana	15	59.66	9.10	31.46	13.33	32.86	10.21
Utah	10	45.90	13.47	27.00	11.77	29.00	9.76
Instru-ment	115	50.40	9.05	31.00	10.20	40.90	10.04

The health locus of control scores were treated as ordinal level data. The decision rule for statistical significance was $p < .05$. Since the sample sizes were small and normality could not be assumed, a nonparametric statistical test, (Mann-Whitney U) was used to determine

if the two samples had been drawn from the same population. A two-tailed z score corrected for ties of -2.6435 ($p = .008$) for the internal health locus of control indicated that the two samples had not been drawn from a similar population. For the external/chance health locus of control variable, the z score corrected for ties of -.8327 ($p = .405$) indicated the two samples were from a similar population. The z score corrected for ties of -.6954 ($p = .486$) for the external/powerful-others health locus of control variable indicated the two samples were similar.

A more powerful inferential parametric statistical test, F - ratio in the analysis of variance, was then used to determine if the two samples could be considered as one homogeneous group. The calculated F - ratio of 4.72 ($p = .01$) indicated that the mean health locus of control scores for the two samples were significantly different and therefore could not be considered as one group (see Table 10).

Using univariate analysis for each variable score, there was no significant difference between the two samples on the external/chance ($p = .399$) and external/powerful-others ($p = .355$). However, there was strong evidence that the mean scores for the internal variable were significantly different ($p = .006$) (see Table 11).

Since there were no statistically significant differences ($p < .05$) between the two samples on the external/chance and external/powerful-others variables, the Montana sample was compared against the normative population means with results generalized to the Utah sample for these two variables. There was a statistically

Table 10

Analysis of Variance by Variable

Variable	Source	DF[a]	SS[b]	MS[c]	F - ratio	p[d]
Internal	Between	1	1137.13	1137.13	9.36	.006*
	Within	23	2794.23	121.49		
	Total	24	3931.36			
External/ Chance	Between	1	119.70	119.70	.73	.399
	Within	23	3735.73	162.42		
	Total	24	3855.43			
External/ Powerful-others	Between	1	89.70	89.70	.88	.355
	Within	23	2319.73	100.85		
	Total	24	2409.43	190.55		

* $p < .05$.

[a]DF indicates the degrees of freedom.

[b]SS indicates the sum of the squares.

[c]MS indicates the mean squares.

[d]p indicates the probability.

significant difference (p = .006) between the internal mean for the Montana sample and the normative sample. There was no statistically significant difference (p = .399) between the Montana sample and the normative population for the external/chance variable. For the external/powerful-others variable there was not a statistically

significant difference (p = .355) between the Montana sample and the normative population (see Table 11). For the internal variable there was no statistically significant difference between the Utah and normative population.

Table 11

Univariate Analysis of Variables for Montana

	Montana			
Variable	Calculated t	Critical t	DF	P
Internal	3.94	2.98	14	.006*
External/ Chance	.194	2.98	14	.339
External/ Powerful-others	-3.04	2.98	14	.355

*$p < .01$.

Polit and Hungler (1978) assert the Pearson correlation coefficients can "summarize the magnitude and direction of a relationship between two variables" (p. 561). The relationship between the health locus of control variables and four of the demographic characteristics were examined. The four demographic factors were age, number of years of morbid obesity, reason for surgery and weight change pattern. There were no statistically significant correlations ($p < .05$) between the demographic factors and health locus of control variables. Table 12

presents the Pearson correlations between the demographic factors and health locus of control variables.

Table 12

Pearson Correlation Coefficients for Health Locus of Control Variables and Selected Demographic Factors

Demographic Factor	N	Variable: Internal	Variable: External/ Chance	Variable: External/ Powerful-others
Age	25	r[a] = -.2258 p = -.139	r = .2829 p = .085	r = .0418 p = .421
Number Years Morbidly Obese	25	r = -.0221 p = .458	r = .2767 p = .090	r = .090 p = .172
Reason for Surgery	24	r = .0903 p = .337	r = .3615 p = .041	r = .041 p = .271
Weight Chance Pattern	25	r = .1423 p = .249	r = -.0111 p = .479	r = .479 p = .271

[a]r indicates Pearson correlation coefficient.

Summary

Twenty-five gastric stapling patients from two different locations responded to a two part questionnaire. The two samples were considered separately based on the Mann-Whitney U score and an F - ratio statistic. The first part of the data gathering material provided demographic characteristics of the gastric stapling patients. The second part provided information concerning source of reinforcement for health-related behaviors. Specifically, internal, external/chance and external/powerful-others variables of their health locus of control orientation were examined. Based on their responses, the two samples had significantly lower beliefs that powerful-others control their health when compared with the normative population. Both study samples have similar beliefs as the normative population that chance controls health. The Montana sample had significantly higher beliefs than both the normative population and Utah sample that control over their health is internally regulated. No statistically significant correlations were identified between selected demographic factors and health locus of control variables except for a slight inverse relationship between reason for surgery and the external/chance variable.

CHAPTER 5

DISCUSSION

Introduction

The purpose of this investigation was to describe demographic and health locus of control characteristics of gastric stapling patients seeking help within support groups. Members from two conveniently selected support groups participated. One group was located in a small town in Western Montana and the other group was located in a large city in Utah. Data were analyzed as two independent samples, because a statistically significant difference was identified between the health locus of control variables in the analysis of variance. In addition, correlations were done to determine relationships between health locus of control variables and selected demographic factors.

This chapter presents the discussion of the findings which were reported in Chapter 4. The discussion includes an overview of data gathering material return rates followed by analysis of demographic characteristics and health locus of control variables as they relate to the literature. This chapter further presents the conclusions based on analysis of the findings, limitations of this study, implications for nursing practice, and recommendations for additional investigations.

Discussion

Data Gathering Material Return

The data gathering material return rates by geographic location were, Montana 80% and Utah 100%. Polit and Hungler (1978) assert that

response rates greater than 50% are sufficient for most investigational purposes.

The distribution and collection methods differed between locations. The Montana sample received mailed data gathering material packets with a follow-up letter and the Utah sample subjects all completed the data gathering materials simultaneously during a support group meeting. The return rate percentage for the Utah sample displays the obvious advantage of maximizing data returns through the group situation. The Montana sample return percentage was lower and one cannot assume the four subjects who did not respond were typical of the whole sample (Polit & Hungler, 1978).

The target population for this study consists of all gastric stapling patients seeking help within support groups. This study utilized a convenience selection of two accessible groups conforming to designated criteria. Due to the small number of subjects in the study and the non-random sampling, representativeness of the sample to the target population is undetermined. Therefore, generalization of the findings to the target population may be limited.

Subject Age

The mean ages for the subjects in the Montana and Utah samples were similar (45 and 42 years respectively). The sample age means in this study were higher than age means of gastric stapling patients reported in the literature. Smith (1981) reported a mean age of 33

years for his patients, Gomez (1980) reported 34 years, Hutzler et al. (1981) reported 35 years and Eckhout and Prinzing (1981) reported a mean of 36 years.

The age ranges for the Montana and Utah samples (34 - 58 and 31 - 53 respectively) were distributed within a shorter array of age ranges than for subjects reported in the literature. Felder and Amaral (1981) reported a gastric stapling patient age range from 14 to 59 years. Quaade et al. (1981) reported a range of ages from 18 to 54 years. Smith (1981) reported ages from 17 to 60 years. Thus, indicating subjects having morbid obesity at an earlier age.

The differences in mean ages between the samples in this study and those reported in the literature result from several factors. First, the ages reported in the literature reflect samples of gastric stapling patients who have undergone surgery but who are not necessarily members of support groups. It could be that patients seeking help within support groups represent the middle to upper age strata of gastric stapling patients. Second, as criteria for participating in this study, subjects had to be 18 years of age. However, the investigator was not advised that any subjects were turned away due to being less than 18 years of age. Third, since the Montana sample reflected the highest mean age (45) a possible consideration may be that patients in a sparcely populated setting wait longer to seek health care. Lastly, this specialized surgery may be unavailable to all morbidly obese individuals due to lack of local physician's training in the new technique.

Sex

The percentage of female subjects in the Montana and Utah samples were 100% and 70%. The actual number of males in the Utah sample was three.

Polit and Hungler (1978) assert that sample sizes less than five tend to produce unstable results and the authors recommend a sample size of at least 10 for every subdivision of the data. Since the Utah data included two subdivisions, male and female subjects, a sample which included 10 females and 10 males would have allowed analysis of the difference between male and female subjects. The Montana sample subjects were all female; therefore, no conclusions regarding possible gender difference could be determined for either sample.

Number of Years Since Surgery

As reported in Chapter 4, fewer years had elasped since the surgical procedure for the subjects in the Utah sample than for the subjects in the Montana sample. Ninety percent of the Utah sample had undergone surgery within the last two years. In direct contrast, one hundred percent of the Montana sample had undergone surgery two or more years previously. The number of years since surgery in this study was greater than for gastric stapling patients in the literature. For gastric stapling patients in the literature, surgery had occurred within the previous year (Eckhout & Prinzing 1981; Hutzler et al., 1981; MacArthur et al., 1981; Smith, 1981). This investigation constitutes the first systematic recording of progress for gastric stapling patients beyond one post-surgical year.

Pre-surgical Weight

The mean pre-surgical weight for the Montana sample (255 pounds) was lower than the mean for the Utah sample (284 pounds). The range of pre-surgical weights for the Utah sample (255 - 445 pounds) was greater than the Montana sample (170 - 336 pounds), despite a smaller number of subjects. The wider range of weights may have contributed to the higher pre-surgical mean weight due to the inclusion of the male subjects, whose weights tended to be higher than the weight of the female subjects. One male Utah subject recorded a pre-surgical weight of 445 pounds.

The mean pre-surgical weights for the Montana sample (255) and Utah sample (284) were similar to the pre-surgical means reported in the literature. Eckhout and Prinzing (1981) reported a mean pre-surgical weight of 268 pounds, Smith (1981) reported 262 pounds and Hutzler et al. (1981) reported a mean of 296 pounds.

Current Weight

The current weight mean for the Utah sample (202 pounds) was higher than the current weight of the Montana sample (189 pounds). The range of current weights for the two samples were similar. The higher current weight mean for the Utah sample may be accounted for by the fewer number of years since the surgical procedure. Most of the Utah sample subjects fell within the one post-surgical year category. Eckhout and Prinzing (1981) explain that weight loss generally continues for about 18 to 24 months before weight begins to stabilize.

It is possible the Utah subjects who indicated one or two years had elapsed since surgery had not completed the weight loss process at the time of this investigation. Another explanation could be that since the Utah sample had a higher pre-surgical mean weight, the post-surgical means could be expected to be higher also.

At the time of this investigation, weight loss for the Montana sample (mean 66 pounds) was less than the Utah sample (mean 82 pounds). Since more years had elapsed since surgery for the Montana sample, it is possible the lower mean weight loss may have been due to the subjects regaining weight after experiencing the weight loss and stabilization. Because the Montana sample had a lower mean pre-surgical weight, it is possible the expected weight loss will not be as great as the Utah sample.

Documentation of weight loss in the literature differs among authors and is not reported for time spans greater than six months to one year. Eckhout and Prinzing (1981) reported a mean weight loss of 74 pounds after six post-surgical months. Smith (1981) reported 'excellent results' (8 - 10 pounds lost per month) in 92% of his patients but did not document the amount of post-surgical time that had elasped. Gomez (1980) reported on three groups of gastric stapling patients with mean weight losses of 73, 74 and 52 pounds after 12 months. Boehmer and Turk (1981) reported an average weight loss of 60% of excess weight after one year. Quaade et al. (1981) reported a mean weight loss of 66 pounds after three months.

Lowest Post-surgical Weight

As reported in Chapter 4, the Montana sample gained more weight after surgery than the Utah sample despite a lower pre-surgical weight. The Montana sample may have gained more weight due to the greater length of time since the surgery as compared to the Utah sample. The majority of subjects in the Montana sample were past the 18 to 24 month weight loss period, whereas, the majority of subjects in the Utah sample were still within this designated period. It is also possible the advantages of the support group setting may have helped the Utah subjects maintain a steadier course of weight loss through peer support. The reader is reminded that the Montana sample constitutes former members of a gastric stapling support group that disbanded one year before this study.

Highest Post-surgical Weight

The Utah sample demonstrated a higher maximum weight regain than the Montana sample despite the difference in time having lapsed since surgery and the assistance received in the support group setting.

Responding to the question asking for maximum weight following surgery, two Utah respondents left the question unanswered. In addition, two Utah subjects recorded their pre-surgical weight but indicated in the question asking for selection of a figure representing their weight loss after surgery, that weight regain to their original pre-surgical level had not occurred. The investigator questions the respondent's understanding of this item. The missing responses and the recording of pre-surgical weights may reflect the respondent's

uncertainty concerning the question's meaning. This question may need to be reworded to enhance clarity.

Height

The means calculated for heights of the samples reflect similar results. The two samples consisted of a similar group of subjects by height. The Utah sample mean was slightly higher which may be due to the inclusion of three male subjects.

Number of Years of Morbid Obesity

The Montana sample demonstrated a greater number of years of morbid obesity than the Utah sample (mean 18 years and 14 years respectively). The Montana sample recorded a lower pre-surgical weight, current weight and weight regain than the Utah sample despite having been morbidly obese longer. It is possible that number of years of morbid obesity may not be correlated with the ability to lose weight for this group of gastric stapling patients.

Number of years of morbid obesity is not documented in the literature of gastric stapling patients except by Hutzler (1981) who reported an average of 20 years morbid obesity for his group of patients.

Weight Change Pattern

Eight subjects in the Montana sample and six subjects in the Utah sample chose figure D for their post-surgical weight change pattern selection and drew in a figure representing their individualized pattern. Polit and Hungler (1978) assert that the open-ended questions

allow for greater sensitivity and respondent freedom not attainable through selection of a set of responses. The development of this question was based on casual observations of weight change patterns of gastric stapling patients in a support group. It is clear the investigator had missed some common post-surgical weight change patterns through these observations. In this study, several weight change patterns were identified as occurring more frequently. The most frequently described weight pattern indicated a steady decline in weight followed by a leveling off or plateauing. Predicted weight loss on very low calorie diets should follow a steady linear loss if caloric restrictions are carefully followed. However, studies have shown actual weight loss follows a decelerating curve similar to that described by respondents in this study as shown in Figure 6 (Bortz, 1968; Bray, 1969; Stuart, Jensen & Guire, 1979). The second most frequently occurring pattern described an overall weight decline but an erratic pattern of gains and losses. The third pattern by frequency of occurrence was selection of Figure A describing a steady post-surgical weight loss. The last pattern by frequency of occurrence was selection of Figure C, describing a steady weight decline followed by regain to original weight.

Reason for Surgery

The majority (60%) of the subjects from both samples wrote in 'health' as the primary reason for selecting gastric stapling surgery as a form of weight control. In a study by Hutzlet et al. (1981) 71%

of 84 subjects indicated better physical health was the primary reason for selecting surgery. Physical appearance was indicated by 18% of his patients while only one subject in the Montana sample indicated physical appearance as the principle reason for surgery. Self image was another major reason for choosing surgery for subjects in the Montana sample. Polit and Hungler (1978) assert that open-ended questions in a questionnaire guaranteeing anonymity allow for candid responses to questions requiring highly personal responses. The subjects in both samples were able to candidly relate their individual reasons for selecting surgery.

Health Locus of Control

Questionnaire

The Multidimensional Health Locus of Control Questionnaire is a tool which yields scores on three independent beliefs about control over health. Health internality, chance/externality and powerful-others/externality are determined by 36 items measured on a summated Likert scale. The questionnaire assesses beliefs or expectancies and focuses on health as an outcome.

The scoring method judged to be most suitable for the small sample size in this study was to convert raw scale scores into standard z scores and label the subjects as 'internal', 'powerful-other/external' or 'chance/externals'. The subjects are labeled depending on which standardized score is highest (Wallston and Wallston, 1982).

Health Locus of Control and Overweight

The relationship of health locus of control variables to gastric stapling patients have not been reported in the literature. The literature review revealed locus of control determination for obese or slightly overweight subjects. O'Bryan (1972) found overweight women were more external than internal, and the external women were not as likely to attribute overweight to physiologic causes. These women were spurred to lose weight by pressure from significant others. Balch and Ross (1975) found a significant correlation between internal locus of control and completion of a weight loss program and subsequent success. Saltzer (1978) found a correlation between internal locus of control and intention to lose weight. Gierszewski (1983) found contradictory results in her study. Internal subjects had less weight loss and more weight gain than external/chance or external/powerful-others subjects.

Data

As reported in Chapter 4, data from the Montana and Utah samples were considered separately. The Montana sample had significantly higher beliefs than the Utah sample and normative population that health is a function of ones behavior. Wallston and Wallston (1982) have summarized their research results and concluded that internal individuals are more likely to assume responsibility for their health and are more apt to maintain physical well-being and guard against relapse. Why then did the subjects in this study score high on the internal variable and show no relationship to the weight change pattern indicating a steady weight loss? It is quite likely that individuals

may believe one thing, yet behave differently when it comes to health. Wallston and Wallston (1982) assert that even people who value health and believe their behavior influences health, will behave in direct contradiction to their beliefs and values. Perhaps a valuable addition to this investigation would have been to tap the value these subjects placed on health. Wallston and Wallston (1983) assert the health behavior should be carried out by people who value health highly and believe behavior enhances health (internal locus of control). Another explanation for the lack of correlation between internal locus of control and successful weight loss could be that these subjects see weight as a problem that must be dealt with outside the health care system.

The two samples had significantly lower beliefs that powerful-others control their health than the normative population. Wallston and Wallston (1982) have constructed a health locus of control typology consisting of eight different patterns of health locus of control expectancies based on whether the score is high or low on the variables. The authors assert that a Type V, or believer in control (scoring high on internal and powerful-others, and low on chance) was the most adaptive individual. This combination of beliefs would be beneficial to an individual coping with a chronic illness. Since the subjects in this study did not score high on the powerful-others variable, according to Wallston and Wallston (1982) they cannot be considered the most likely individuals to accept the responsibility for carrying out the necessary dietary restriction following surgery prescribed by health care professionals.

Chronicity of morbid obesity did not correlate to any health locus of control variables. More work is needed to distinguish the relationship between chronic morbid obesity and health locus of control characteristics. Wallston and Wallston (1983) assert that health locus of control beliefs in concert with health value and various aspects of the situation should influence health behavior related to chronic illness. Again, taping beliefs about health value may have provided part of the missing link between health locus of control variables and chronicity of the obesity.

Age did not correlate with any health locus of control variables. Perhaps, once again evaluating the subjects value of health may have identified a correlation. Wallston and Wallston (1982) assert that health value is dependent on age, older individuals value health more than younger individuals.

There was no significant correlation between reason for surgery and health locus of control variables, except a slight inverse correlation for external/chance orientation and reason for surgery. More work is needed to clarify the relationship between reasons for gastric stapling surgery and health locus of control variables.

Based on their responses, both samples had scored similar to the normative population on the external/chance variable. From this data one can conclude that these two samples of gastric stapling patients believe as the population at large, that chance has an average influence of health.

The tool developers have recently advocated the use of a measure of health value in interaction with health locus of control scores

(Wallston et al., 1983). The interaction of health locus of control and health value (HV) influences health behavior (HB) and is represented in the following equation: HB = f(HLC X HV). In this equation health behavior is a function of health locus of control and health value. Prediction of health behavior is more specifically determined by the following equation: HB = IHLC X HV + PHLC - CHLC. In this equation, an individual with a high internal health locus of control (IHLC) and a high health value (HV) along with high powerful others belief (PHLC) and low chance belief (CHLC) would be most likely to engage in health behaviors (HB) (Wallston & Wallston, 1983).

Limitations

A number of limitations associated with this study have been identified. First, there were several disadvantages related to a mailed questionnaire design which included nonresponse bias, misinterpretation and missing data. Polit and Hungler (1978) caution that nonresponse is a random process introducing bias. The Montana sample may have been subject to bias due to nonresponse of four members of the support group. Polit and Hungler (1978) also suggest respondents may misterpret questions and will not have the opportunity to clarify matters when the investigator is not present. The question on the demographic data form asking for the highest post-surgical weight may have been ambiguous for several Utah respondents, and there was no opportunity to clarify its meaning or to gather missing data from questions left unanswered. Also, with a mailed questionnaire the

investigator cannot be positive that the intended participants were the ones who completed the data gathering materials.

A second limitation relevant to this study involved accuracy of self-reports. Khosla and Newcombe (1981) caution that a large bias may be introduced where heights and weights are reported and not measured. The bias will swing towards underestimation since heights are usually overstated and weights understated (Khosla & Newcombe, 1981). Actual investigator measurement of heights and weights would have been preferable to avoid the potential of self-report bias.

The third limitation of this study involved the Multideminsional Health Locus of Control Questionnaire itself. The tool refers to health in the abstract and is not situation specific for weight or morbid obesity. The respondents may have questioned whether to think of health associated with weight or health in general when answering the questions.

Recent publications by the tool originators have advocated concurrent investigation of health value when using the health locus of control questionnaire. In this study, an understanding of health value may have provided information allowing more extensive interpretation of the data.

Due to the small sample sizes some of the demographic groupings represented only one subject, making interpretation difficult. A larger sample would have allowed for health locus of control typology and more extensive interpretation of the data. The representativeness of the target population was not determined; therefore, the descriptive

data and health locus of control data may not be true of gastric stapling patients in all geographic locations.

There may have been a bias for writing 'health' as the principle reason for choosing surgery due to the investigators association with the health care profession. The cover letter explained the investigators purpose and association with the nursing profession.

A final limitation involves the use of two different sampling methods. Use of similar sampling techniques would have been preferable to avoid potential bias.

Summary

Understanding health related behavior is an important consideration for health care professionals. As acute illness subsides, treatment of chronic illness becomes the focus of improving health. A key component surrounding these concerns are the health behaviors of individuals. As a science dealing with individuals in various stages of health and illness, nursing should be systematically studying behaviors associated with promotion of health and prevention of disease states.

Although it is clearly simplistic to consider one characteristic, health locus of control as sufficient to be associated with a disorder as complex as morbid obesity, one also may not be justified in dismissing the potential importance of this characteristic in reference to weight status following gastric stapling surgery. In this investigation, health locus of control variables were determined for

two small samples of gastric stapling patients. Based on their responses the two samples were significantly different than the normative population. The Montana sample had stronger beliefs that health is internally regulated. The internal variable was not associated with a continuous weight loss following surgery. It is possible the two samples in this study were a subgroup of the total gastric stapling population at large by choosing to be members of support groups. The membership indicates a choice of involvement in the group weight loss process. Perhaps these subjects would tend to be more internal than one would expect of individuals choosing this type of surgery. The two samples described average weight losses of 66 and 82 pounds with average maximum weight regains of 44 and 52 pounds. It is clear that more than an internal health locus of control belief is necessary for successful weight loss. Perhaps Arakelian (1983) and Shillinger's (1983) discussion of compliance and factors influencing therapeutic regimens are incomplete and should encompass such possible components as health value, client motivation, social support and habit.

Although the results may not be true of all gastric stapling patients in support groups, it is hoped that the findings may generate an interest in additional research and provide a beginning data base.

Conclusions

1. The two samples had significantly lower scores than the normative population on the powerful-others variable. From this data

one can determine that the influence of health care professionals, family and friends have little influence on the perceived health status of these two samples of gastric stapling patients.

2. This study's results provide no clear evidence that any specific health locus of control orientation is associated with weight outcomes following surgery. These findings cannot be broadly generalized to the target population.

Implications

Several implications for nursing practice may be drawn from the findings of this investigation. Since nursing practice includes research, it is clear that additional research is needed to better understand health related behaviors of gastric stapling patients in support groups.

From the literature review, it is clear that theory development surrounding health locus of control and health related behavior is incomplete. Perhaps continued research on the relation of beliefs to health behavior may add to theory development.

Morbid obesity and gastric stapling surgery remain complex events necessitating individual approaches to each patient. At present, nurses must not make general assumptions relative to these patients, but rather develop an individual assessment of each client. Understanding individual differences is important for planning nursing care that will enhance compliance. A professionals approach in planning for nursing intervention for the gastric stapling patient

should vary if the individual is internal or external in health locus of control. Based on information from Wallston and Wallston (1983) persons who believe that their own behavior affects their health have more positive attitudes toward self-care and are more involved in their own care. For individuals with chronic diseases, Wallston and Wallston (1982) advocate that a partnership with health professionals may encompass both internal and powerful-others beliefs.

Recommendations

The results of this investigation have raised some questions relative to health locus of control orientation and gastric stapling patients. Recommendations for further study include the following:

1. Replication of the study with a larger sample of the target population.

2. Comparison of the larger study with gastric stapling patients who are not involved in gastric stapling support groups to determine if the target population in this study is unique.

3. Replication of the study with the inclusion of health value determination.

4. Examination of additional demographic factors such as weights of family members, education, marital status and employment status to expand the data base.

5. Developing a tool that is situation specific for determining health locus of control for morbidly obese gastric stapling patients.

6. Replication of the study with the inclusion of criteria for surgery at investigation locations.

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APPENDICES

APPENDIX A

HUMAN SUBJECTS APPROVAL

RESEARCH PROPOSAL FOR HUMAN SUBJECTS REVIEW

Title of Project "Weight Loss Outcomes and Health Locus of Control Following Gastric Stopling Surgery

Investigator Colleen Hook RN Date 10/24/83

Thesis Committee:

Barbara A. Rogers Chairperson (signed)

Kari Peterson Committee member (signed)

Teresa C. Snyder Committee member (signed)

Please answer the following questions:

1. X Yes ____ No Does the project involve the administration of personality tests, inventories or questionnaires? If YES, provide the name of the tests, if standard, or a complete copy if not standard.

2. ____ Yes X No For studies to be conducted at hospitals and clinics do the proposed studies involve the use, methods, techniques or apparatus other than those used routinely at these facilities.

3. Human subjects would be involved in the proposed activity as either:
X none of the following, or including: ____ minors, ____ fetuses, ____ abortuses, ____ pregnant women, ____ prisoners, ____ mentally retarded, ____ mentally disabled.

Colleen Hook RN Date 10/24/83
Signature of Principal Investigator

APPROVAL (If disapproval, do not sign and append comments).

Cheryl A Olson Date 11/7/83
Signature of Education Director

E Mahaar Date 11-14-83
Committee Member

Dora Tracy Date NOV. 11, 1983
Committee Member

SCHOOL OF NURSING

MONTANA STATE UNIVERSITY BOZEMAN 59717

December 6, 1983

Colleen Hook
MSU, School of Nursing
612 Eddy
Missoula, MT 59812

Dear Ms. Hook:

I have reviewed your research proposal titled, Weight Loss Outcomes and Health Locus of Control Following Gastric Stapling Surgery, for potential risk to human subjects. Since sufficient safeguards have been designed in your study, no significant risk to human subjects exists. Therefore, you may commence with data collection.

Any consent forms signed by subjects and a record of any untoward event occurring during the course of the study are to be stored in a sealed envelope at the School of Nursing office for a period of five years.

Best wishes in the pursuit of this creative goal.

Sincerely,

Anna M. Shannon

Anna M. Shannon, R.N., D.N.S., F.A.A.N.
Dean of Nursing

AMS/bv
Enc: 1

cc: Education Director
Chairperson, Thesis Committee

TELEPHONE (406)994-3783

APPENDIX B

INVESTIGATIONAL INSTRUMENT

VANDERBILT UNIVERSITY
NASHVILLE, TENNESSEE 37240 TELEPHONE (615) 322-7311

Health Care Research Project • School of Nursing • Direct phone 322-2520

Dear Colleague:

Thank you for your interest in our Health Locus of Control Scales. Please excuse this form response, but we have so many inquiries requiring similar replies that we have found this to be an efficient means of disseminating information.

You have our permission to utilize the scales in any health related research you are doing. Our only request is that you keep us informed of any results you obtain using the scales. In that way we hope to continue to serve as a clearinghouse for information about the scales.

We recommend using the more recently developed Multidimensional Health Locus of Control Scales (Health Education Monographs, 6, Spring, 1978, pp. 160-170) over the earlier, unidimensional HLC Scale (Journal of Consulting and Clinical Psychology, 1976, 44, 580-585), since the newer measures are psychometrically superior and potentially more useful.

If you wish to be added to our mailing list or want us to send you additional material, please complete the enclosed interest questionnaire. We hope to periodically send additional material related to use of these scales as it becomes available.

If you have more specific questions, don't hesitate to contact us. Please remember to send us information on any use you make of our scales. We have included a usage questionnaire to facilitate your doing so. We look forward to hearing from you.

Sincerely,

Kenneth A. Wallston, Ph.D.
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in Nursing
School of Nursing
Vanderbilt University
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July 13, 1984

Colleen Hook, RN
2523 West Central
Missoula, MT 59801

Dear Ms. Hook:

You have my permission to reprint statistics relating to the Multidimensional Health Locus of Control Scale in your master's thesis in Nursing.

Sincerely,

Kenneth A. Wallston, Ph.D.
Professor of Psychology in Nursing

KAW:sj

Colleen Hook RN
Montana State University
School of Nursing
612 Eddy St.
Missoula, Montana 59801

Dear Gastric Stapling Patient,

This letter asks you to participate in a study of gastric stapling patients. Enclosed are two short questionnaires which I hope you will fill out. The purpose of the questionnaires is to gather information from people who have had gastric stapling surgery. I intend to use this information to help people who will have this surgery in the future. I am interested in helping people be successful with weight loss after the surgery and feel that doing research directly asking for input from patients is the best way to accomplish this task.

You will remain anonymous in this study (even to me). Voluntary participation in the study is indicated by return of the questionnaires. The results of this study will be made available to your support group leader for those of you who are interested. As a former gastric stapling support group leader and current graduate student in nursing your participation in this research project which constitutes my masters thesis will be greatly appreciated. Thank you for your time and cooperation.

Sincerely,

Colleen Hook

Colleen Hook RN

Colleen Hook RN
Montana State University
School of Nursing
612 Eddy St.
Missoula, Montana

Dear Gastric Stapling Patient,

This letter asks you to participate in a study of gastric stapling patients. Enclosed are two short questionnaires which I hope you will fill out. The purpose of the questionnaires is to gather information from people who have had gastric stapling surgery. I intend to use this information to help people who will have this surgery in the future. I am interested in helping people be successful with weight loss after the surgery and feel that doing research directly asking for input from patients is the best way to accomplish this task.

You will remain anonymous in this study (even to me). Voluntary participation in the study is indicated by return of the questionnaires. A self-addressed stamped envelope is enclosed for your convenience in returning the questionnaires. The results of this study will be made available to your former support group leader for those of you who are interested. As a former gastric stapling support group leader and current graduate student in nursing your participation in this research project which constitutes my masters thesis will be greatly appreciated. Thank you for your time and cooperation.

Sincerely,

Colleen Hook RN

Colleen Hook RN

Colleen Hook RN
Montana State University
School of Nursing
612 Eddy St.
Missoula, Montana 59801

Dear Gastric Stapling Patient,

One week ago you were sent two questionnaires to fill out. The completed questionnaires have not yet been received. The information you could provide by completing the questionnaires is invaluable for the project and for helping people who will have this surgery in the future as well. Your cooperation in filling out and returning the questionnaires as quickly as possible is requested and would be greatly appreciated. Thank you for your time and consideration.

Respectfully,

Colleen Hook RN

Colleen Hook RN

I E Scale

This questionnaire is designed to determine the way in which you view important health related issues. Each item is a brief statement with which you may agree or disagree. Beside each statement is a series of numbers that ranges from strongly disagree (rated as 1) to strongly agree (rated as 6).

1 = Strongly disagree
2 = Moderately disagree
3 = Slightly disagree
4 = Slightly agree
5 = Moderately agree
6 = Strongly agree

Please circle only one number per statement based on your personal beliefs. There are no right or wrong answers.

1.	If I get sick, it is my own behavior that determines how soon I get well again.	1 2 3 4 5 6
2.	No matter what I do, if I am going to get sick, I will get sick.	1 2 3 4 5 6
3.	Having regular contact with my physician is the best way for me to avoid illness.	1 2 3 4 5 6
4.	Most things that affect my health happen to me by accident.	1 2 3 4 5 6
5.	Whenever I don't feel well, I should consult a medically trained professional.	1 2 3 4 5 6
6.	I am in control of my health.	1 2 3 4 5 6
7.	My family has a lot to do with my becoming sick or staying healthy.	1 2 3 4 5 6
8.	When I get sick, I am to blame.	1 2 3 4 5 6
9.	Luck plays a big part in determining how soon I will recover from an illness.	1 2 3 4 5 6
10.	Health professionals control my health.	1 2 3 4 5 6

11.	My good health is largely a matter of good fortune.	1 2 3 4 5 6
12.	The main thing that affects my health is what I myself do.	1 2 3 4 5 6
13.	If I take care of myself, I can avoid illness.	1 2 3 4 5 6
14.	When I recover from an illness, it's usually because other people (for example, doctors, nurses, family friends) have been taking good care of me.	1 2 3 4 5 6
15.	No matter what I do, I'm likely to get sick.	1 2 3 4 5 6
16.	If it's meant to be, I will stay healthy.	1 2 3 4 5 6
17.	If I take the right actions, I can stay healthy.	1 2 3 4 5 6
18.	Regarding my health, I can only do what my doctor tells me to do.	1 2 3 4 5 6

1.	If I become sick, I have the power to make myself well again.	1 2 3 4 5 6
2.	Often I feel that no matter what I do, if I am going to get sick, I will get sick.	1 2 3 4 5 6
3.	If I see an excellent doctor regularly I am less likely to have health problems.	1 2 3 4 5 6
4.	It seems that my health is greatly influenced by accidental happenings.	1 2 3 4 5 6
5.	I can only maintain my health by consulting health professionals.	1 2 3 4 5 6
6.	I am directly responsible for my health.	1 2 3 4 5 6
7.	Other people play a big part in whether I stay healthy or become sick.	1 2 3 4 5 6
8.	Whatever goes wrong with my health is my own fault.	1 2 3 4 5 6

9.	When I am sick, I just have to let nature run its course.	1 2 3 4 5 6
10.	Health professionals keep me healthy.	1 2 3 4 5 6
11.	When I stay healthy, I'm just plain lucky.	1 2 3 4 5 6
12.	My physical well-being depends on how well I take care of myself.	1 2 3 4 5 6
13.	When I feel ill, I know it is because I have not been taking care of myself properly.	1 2 3 4 5 6
14.	The type of care I recieve from other people is what is responsible for how well I recover from an illness.	1 2 3 4 5 6
15.	Even when I take care if myself, it's easy to get sick.	1 2 3 4 5 6
16.	When I become ill, it's a matter of fate.	1 2 3 4 5 6
17.	I can pretty much stay healthy by taking good care of myself.	1 2 3 4 5 6
18.	Following doctor's orders to the letter is the best way for me to stay healthy.	1 2 3 4 5 6

Demographic Data Form

1. Age_____

2. Female_____ Male_____

3. Date and month of surgery_____ Year_____

4. Weight before surgery (in pounds without clothes)_____

5. Current weight (in pounds without clothes)_____

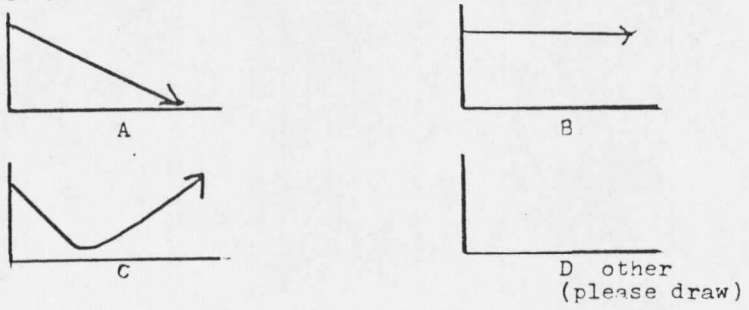
6. Lowest weight since surgery (in pounds without clothes)
_____

7. Highest weight since surgery (in pounds without clothes)
_____

8. Height (in inches without shoes)_____

9. Number of years being 100 pounds (or more) overweight
_____

10. Circle the figure which best describes your weight since surgery.



11. I wanted to have this surgery to lose weight because:
_____
_____
_____
_____

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