CHARACTERISTICS OF PATIENTS CORRELATED WITH METHOD OF MANAGEMENT OF THE SIGMOID COLOSTOMY

by

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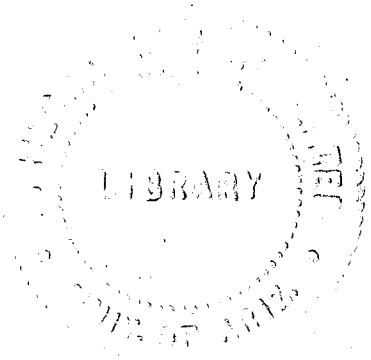

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ABSTRACT

Seventeen members of a Southwestern metropolitan area ostomy club, all having sigmoid colostomies at least two months old, answered a questionnaire concerning aspects of living with the colostomy. The questions pertained to factors such as method of management of the colostomy, length of time with the colostomy, gas and odor problems, skin irritation, persons who have helped in the adjustment to the colostomy, and time spent caring for the colostomy.

The researcher looked for correlations between these characteristics and method of management, either irrigation or natural evacuation. Chi-square testing yielded significant correlations between method of management originally taught and irrigation, unexpected evacuations and irrigation, use of a disposable bag covering the stoma and natural evacuation, and regular bowel habits before the operation and natural evacuation. Many variables tested were not significantly associated with method of management. These results give direction for counseling patients with sigmoid colostomies.

CHAPTER 1

INTRODUCTION

The continuing care of patients with stomas is an area within the realm of nursing. Rowbotham (1970) stated that,

> The number of ostomy organizations which have arisen both in this country and abroad during the past decade is evidence that stoma patients need and are seeking help. This, moreover, suggests a failure by physicians individually and the general medical and paramedical groups collectively to provide stoma patients with the necessary guidelines for medical and social rehabilitation (p. 59).

Of course, it is natural that a patient would seek others in a similar situation with whom to share experience, but professional help is needed also. Recognition of the special problems of patients with stomas is evidenced by hospitals employing enterostomal therapists in stoma clinics, and by programs training registered nurses or laymen as enterostomal therapists. A national organization of these therapists now has 150 members, according to a local member, while the United Ostomy Association which began in 1960 now has 150,000 members, according to the same source.

One area in the field of stoma care is that concerned with the sigmoid colostomy. The preferred method of management of this colostomy by doctors in the United States

has been daily irrigation while in Europe it has been natural evacuation (Goligher, 1967, p. 731). While both methods or combinations thereof have been used, evidence suggests that no one method is suitable for all patients. It would be helpful to know if certain characteristics of patients or situations correlate significantly with the method of management of the sigmoid colostomy.

Statement of the Problem

Do certain defined characteristics of patients having sigmoid colostomies correlate significantly with the method of management of evacuation by: (1) irrigation--(a) daily, or (b) less frequent; (2) diet; (3) medication; and (4) natural evacuation?

Significance of the Problem

Having a colostomy can mean anything from withdrawal from normal living to the beginning of a new satisfying life to the person experiencing it. Hopefully, it means the latter. Whether or not the person is able to develop a positive, hopeful attitude depends in part upon how individualized is his program of colostomy management and how well it fits into his daily life style.

For many years nurses have advocated patient-centered nursing care. In 1960, however, Abdellah et al. said that the,

> . . . bulk of the nation's actively practicing registered nurses are products of an educational system in nursing which has been procedure and diagnostic-centered and geared to the service needs of hospitals rather than to patients' needs (p. 2).

Much medical research, past and present, focuses on gastrointestinal physiology but this investigator has found no nursing research concerning long-term colostomy care. Abdellah et al. (1960) have also said that, "One of the greatest barriers keeping nursing from becoming a fully recognized profession is the lack of a scientific body of knowledge which is uniquely nursing" (p. 2).

Purpose of the Study

The patient with a sigmoid colostomy is usually taught some method of control of evacuations. One method is irrigation of the colon through the stoma (1) daily, (2) every other day, (3) bi-weekly, (4) only when constipation occurs, or (5) at whatever interval the patient finds convenient. Other methods include natural evacuation or natural evacuation aided by diet, adherence to specific meal times, use of cathartics, etc. The choice of method varies. The unique characteristic of the sigmoid colostomy is that the feces at this location in the bowel are semi-solid or solid and drainage is not constant as it would be with an ascending or transverse colostomy or an ileostomy (Given and Simmons, 1971, p. 223).

The purpose of this study is to attempt to discover what characteristics of patients are associated with management of the sigmoid colostomy by daily irrigation as opposed to less frequent irrigation or other methods such as diet, medication, or natural evacuation. This information may provide clues for counseling new colostomy patients, add to the knowledge of factors associated with methods of management of the sigmoid colostomy, and give direction for further studies.

Theoretical Framework

An attempt to discover what characteristics of patients are associated with methods of management of the sigmoid colostomy requires an understanding of some aspects of bowel physiology.

The many variations in the method of management of the sigmoid colostomy are possible because fecal drainage at this location in the bowel is not constant. The sigmoid colon is used mainly for storage of fecal matter and minimally for further absorption of water and electrolytes. Most salt and water absorption occurs in the right side of the colon (Levitan, 1969, p. 317). The fecal mass in the sigmoid colon is semi-solid to solid and moves out of the area into the rectum or through the stoma when mass peristalsis occurs. In the colostomy patient who lacks

the rectum and anus, the large intestine is capable of emptying naturally in most instances.

A sigmoid colostomy is used to divert the fecal flow and is most frequently performed for cancer of the rectum (Texter et al., 1968, p. 134). A portion of the sigmoid, the rectum, and the anus are removed by perineal resection. The end of the remaining section of large intestine is brought through an opening in the abdominal wall and sutured in place. Methods of suturing have improved and the suturing is now done in such a way as to prevent prolapse of the stoma (Goligher, 1967, p. 732). Depending on the reason for the operation, the colostomy may be temporary or permanent.

The stoma merely provides a new opening through which the stool can pass to the outside of the body. The stoma has no sphincter control, however, and the colon is less sensitive and discriminating than the rectum (Given and Simmons, 1971, p. 190).

Motility studies of the large intestine reveal that there is constant localized movement in the form of Haustral contractions. Contraction, in response to the stretching stimulus of the fecal mass, followed by an area of relaxation occurs throughout the bowel (Texter et al., 1968, p. 133). Larger peristaltic waves move the fecal mass along two or three times a day (Williams and Dickey, 1969, p. 851). This bowel motility occurs from the right to the

left (Bloom, LoPresti, and Farrar, 1968, p. 239). Unless the bowel is obstructed or has damage to its intrinsic nervous system, the stool will pass out wherever there is an opening (Texter et al., 1968, p. 134).

In addition a duodeno-colic reflex occurs in which food in the duodenum stimulates vagal innervation of the entire large intestine and results in a mass movement which propels the fecal mass along a great distance (Guyton, 1971, p. 750).

Limitations

1. The sample was composed of only seventeen patients.
2. The researcher had no control over the number of patients using different methods of management of evacuation of the sigmoid colostomy.
3. Each patient was interviewed only once.
4. The list of variables included is a selected list which seemed to the researcher to be implicated in the choice of colostomy management. Psychological variables, undoubtedly of great importance with these patients, were not considered in this study.
5. All patients were members of the local mutual-aid club for stoma patients.

Assumptions

1. Rating scales can be utilized for nursing assessment.

2. Sigmoid colostomy patients make up a discrete category within the spectrum of patients with stomas because of the consistency of fecal contents at this location in the bowel.
3. No one method of sigmoid colostomy management is suitable for all patients.

Definitions

1. A patient in this study is a person who has had a sigmoid colostomy for at least two months.
2. A sigmoid colostomy is the establishment of an artificial anus by externalization of the colon at the level of the sigmoid.
3. An ileostomy is the establishment of an artificial anus by externalization of the ileum.
4. An ascending colostomy is the establishment of an artificial anus by externalization of the colon at the level of the ascending colon.
5. A transverse colostomy is the establishment of an artificial anus by externalization of the colon at the level of the transverse colon.

CHAPTER 2

REVIEW OF THE LITERATURE

A review of current literature follows on the physiology of the large intestine, management of the sigmoid colostomy, rehabilitation of colostomy patients, and demographic statistics concerning colostomy patients.

Physiology

Relevant aspects of large intestine basic physiology were reviewed in the theoretical framework in Chapter 1. The findings of some recent specialized studies are presented here. Levitan in his 1969 study of colonic absorption found that the healthy colon could absorb about 2.4 liters of water, 400 mEq. of sodium, and 560 mEq. of chloride over a twenty-four hour period (p. 316). Current research shows that water is passively absorbed following active transport of sodium across the colonic mucosa, and that its absorption maintains osmotic gradients (Texter et al., 1968, p. 216). Levitan (1969) found that the net water absorption by the colonic mucosa is related to the sodium concentration of fluids presented to it. Maximal water absorption occurred when sodium concentration in the fluid in the bowel lumen was between 130-150 mEq. per liter; water absorption stopped when sodium concentration

was below 25 mEq. per liter. Levitan (1969) also found that absorption of sodium against a concentration gradient does not occur in the jejunum or ileum (p. 316). Colonic pore size is smaller than that of the jejunum or ileum (Levitan, 1969, p. 317).

The large intestine can alter its ability to absorb sodium and water under hormonal influences. Levitan (1969) stated that ". . . ADH to well-hydrated subjects resulted in a significant decrease in net sodium, chloride, and water absorption from the colon" (p. 316). Aldosterone increases sodium, chloride, and water absorption (Williams and Dickey, 1969, p. 849). Diseased states can also affect the ability of the colon to solidify fecal material. Levitan (1969) found that the inflamed colon cannot absorb sodium and water efficiently (p. 316).

Boley et al. (1969) studied the effects of bowel distention on intestinal blood flow on anesthetized dogs. They found that bowel distention decreased intestinal blood flow either because of compression of capillaries and small arterioles or by neural reflex mechanisms (p. 231). As blood flow decreased, the arterial-venous oxygen content ratio also decreased, indicating decreased oxygen uptake by the intestine (Boley et al., 1969, p. 233). Also, "Release of intraluminal pressure produced an immediate rise in blood flow to above control levels followed by a return to normal within five minutes. This surge in blood flow was usually

accompanied by a transient fall in systemic arterial blood pressure" (Boley et al., 1969, p. 229). The distended bowel with extensive mucosal damage has a normal external appearance which masks the pathology. The normal external appearance is explained by the high oxygen saturation of the venous blood and the continuing flow through serosal vessels. With a general state of moderate hypovolemia there can be a decrease in splanchnic blood flow (Boley et al., 1969, p. 232). Boley et al. also explained that the colon's relatively low normal blood flow contributes to its susceptibility to the ischemic effects of distention. The colonic blood flow has been reported to be the lowest in cubic centimeters per gram per minute of all intestinal tissues (p. 232).

Boley et al. (1969) also cited a related investigation in which preliminary findings indicate that repeated short episodes of relatively low pressures of an air-filled balloon in the lumen of the colon produced a prolonged diminution in blood flow and morphologic changes indicative of interference with intestinal circulation (p. 232). Digestion in the colon is normally limited but bacterial enzymes can break down cellulose, Escherichia coli splits triglycerides, and amino acids are changed by bacteria in the large intestine (Williams and Dickey, 1969, p. 849).

Williams and Dickey's (1969) findings relative to colonic absorption support Levitan's (1969) findings, but

Williams and Dickey added that most studies have involved the entire colon and a difference between absorption in the ascending and descending colon has not been specifically studied. Williams and Dickey also found alterations of normal electrolyte and water absorption and excretion in the colon during disease. Most types of diarrhea are due to either excessive small intestine or ascending colon fluid or an abnormal absorption due to disease of the colonic mucosa. Villous adenomas of the colon liberate a substance which acts to increase secretion of the colonic mucosa. In multiple polyposis the net transport of water and electrolytes is normal but the increased surface area probably causes the increased movement of sodium, potassium, and water (Williams and Dickey, 1969, p. 850).

Williams and Dickey (1969) also studied colonic motility and differentiated four types of contractions. Type I are rapid, localized and surface dimpling. Type II are superimposed on Type I, are slower, longer, and more indenting. These are Haustral contractions. Type III are large complex waves changing base-line pressure or tone in a large segment of colon. Type IV are simple long waves lasting two to five minutes. These are usually associated with diarrhea and ulcerative colitis. According to Williams and Dickey (1969), the colon is active fifty percent of the time. Average pressures are greater in the sigmoid than in the rest of the colon. The frequency of

contractions is greater in the rectum although contractions tend to be slower. For every sigmoid contraction attempting to drive feces into the rectum there are several waves preventing it. The right and left sides of the colon show independent activity with the right side of the colon more active than the left from nonpropulsive contractions.

Propulsive contractions of the colon occur only two or three times every twenty-four hours but the rate of colonic emptying varies (Williams and Dickey, 1969, p. 851). This right to left activity of the colon was studied by Bloom et al. (1968), "The presence of a gradient which could account for right to left movement of the colonic contents was suggested by the observation of wave forms with higher amplitudes . . . and durations . . . than their counterparts in the left colon" (p. 239).

Williams and Dickey (1969) found that opium and morphine increase colon activity but not defecation. Also, "Hypertrophied colonic musculature responds greatly to increased contractions and raises intracolonic pressures to dangerous levels" (Williams and Dickey, 1969, p. 851).

Speaking of cell turnover, Williams and Dickey (1969) cited studies explaining that the entire colon and rectal crypts are replaced every three or four days, but that colonic distention alters cellular kinetics. The association of cell renewal rates with absorption, secretion, and motility is unknown. This knowledge would

certainly be of importance with cancer patients. Williams and Dickey (1969) also said that the cell renewal in the small intestine and probably in the colon and rectum may be altered by endocrine deficiencies, starvation, resection of the intestines, changes in the autonomic nervous system, reserpine, and bacterial flow.

Increasing knowledge of bowel physiology will continue to influence medical, surgical, and nursing procedures.

Management of the Sigmoid Colostomy

Opinions vary about how to manage the sigmoid colostomy. Smith, Germain, and Gips in their 1971 nursing text said that "Scheduled daily irrigation to establish regularity will help the patient achieve control more rapidly" (p. 746). According to Given and Simmons in their 1971 text, "There are two ways of managing a colostomy; one is irrigating with water and the other is training the bowel to evacuate naturally without irrigations. In the past it has been the trend to manage without these" (p. 216). Goligher (1967) stated that ". . . most surgeons in Britain at the present time prefer to manage colostomies by the routine of spontaneous actions regulated by diet and drugs. The ideal here is one or two motions daily" (p. 731). He added, however, that the advantage of a daily irrigation is that it gives a ". . . greater degree of assurance against unwanted actions at inconvenient times" (p. 731). However,

O'Brien (1972) felt that daily irrigation rarely provides such assurance. Goligher also said that one practical reason for the unpopularity of irrigations in England is the lower standard of domestic sanitation in some areas of England. Between twenty and thirty percent of hospital patients return to homes that have no bathroom.

O'Brien (1972) in his support of irrigation said that,

> The rate of flow of fecal mass through the right colon and the ability of the bowel to absorb water will determine what is to be discharged through the stomal opening in the sigmoid colon. There is no sphincter on an end colostomy nor indeed any proximal rectal valves or distensible rectum. To expect some type of regular involuntary bowel movement from a sigmoid colostomy is unrealistic (p. 395).

In 1967, Amdrup and Christensen did a follow-up study of seventy-five sigmoid colostomy patients in Denmark who were all using natural evacuation. These patients were fifty to seventy years old, were in good general health, and had continued their trade or profession after the operation. Nineteen patients had one movement daily in the morning; twenty-five had two movements every day; three patients had three every day. Twenty-eight had a continuous movement and three said it was of a thin consistency. Many of the patients knew more or less the times at which the movement would occur. Some could vary the time of defecation by altering their mealtimes. Most used two plastic collection bags every twenty-four hours. Seven did not use a bag

because of skin irritation. Twenty-three used them intermittently with a bandage. All patients found the audible passage of gas embarrassing. Forty-six had problems with odor. Most became completely used to having a colostomy, and fifteen were very inhibited by the situation (pp. 747-748).

Most doctors agree that the chief disadvantage of the irrigation method is danger of perforation because the bowel is insensitive to pain (Beck, 1971, p. 538) and the colonic mucosa may be friable. The danger also exists of water intoxication (Smith et al., 1971, p. 748) should the irrigating fluid be trapped in the bowel and the kidneys be diseased and unable to produce a more dilute urine. Soap added to the irrigating solution reduces the surface tension of water and allows it to mix with the fecal material (Gogg, 1970, p. 173), but it also is a known bowel irritant (Smith, 1967, p. 215). Cases of anaphylactic shock following a soap suds enema (Smith, 1967, p. 215), and rectal gangrene following frequent enemas (Bendit, 1945, p. 664) were reported.

Amdrup and Christensen's (1967) follow-up study showed that the patients would prefer irrigation if they had more than two or three evacuations per day or if there was a severe flatus problem. Their arguments against irrigation were that it takes at least one hour; it demands

a certain degree of intelligence and physical dexterity; and good toilet facilities are needed (p. 747).

Rehabilitation

O'Brien (1972) stated that, "Rehabilitation is the science and skill of returning the patient as rapidly and completely as possible to his rightful role with his family and society" (p. 394). He mentioned that the American Cancer Society recommends an enterostomal therapist for long-term help. Many hospitals also have a stoma rehabilitation clinic. O'Brien (1972) estimated that during the academic year of 1972-1973 five hundred new cases of cancer of the colon and rectum would be diagnosed in South Carolina and that one-half of these would require a sigmoid colostomy.

Rowbotham (1970) in a two-year report on his Stoma Rehabilitation Clinic explained that the ". . . prevailing opinion of medical people (is) that colostomy patients don't have any trouble. We are seeing more colostomies and fewer ileostomies than we expected" (p. 59). Patients are referred to his clinic for initial training, general rehabilitation, or a crisis situation. He found that some patients leave the hospital with no knowledge of stoma care. The most frequent problems of patients with sigmoid colostomies who attended his clinic were irrigation problems, improper appliance, need for an appliance, odor problem, stricture of the stoma, paracolostomy hernia, and incomplete

emptying of the bowel (p. 60). Rowbotham (1970) said that the members of his clinic had learned the following hard facts:

1. Every stoma must be inspected at every visit, and appliance must be removed in the presence of the physician and stoma therapist.

2. Temporary inexpensive stoma appliances must be available in the clinic and doctor's offices for all who forget their spares.

3. The variety of normal eating habits makes it difficult to have a colostomy diet.

4. The bowel routine of a sigmoid colostomy patient is apt to be the same as it was before his illness and surgery.

5. Colostomies work sometimes because of irrigations, sometimes in spite of them.

6. Because there can be no voluntary control of the stoma, patients should be allowed the courtesy of wearing inexpensive disposable appliances to collect the discharge, whether it be gaseous, liquid, or solid.

7. The odor of feces, especially colonic, can be greatly reduced by taking Bismuth Subcarbonate 0.6 Grams TID.

8. Stomal care is caring for the patient who has the stoma (p. 61).

Demographic Statistics

Cunningham in a 1969 demographic survey of 3739 stoma patients published by the United Ostomy Association found many interesting correlations, among which are the following concerning colostomies:

1. Four times as many Jewish persons are found among colostomates as are found in the general public.

2. Colostomates are older than ileostomates and three-fourths of the colostomates are over age 50.
3. One-fifth as many colostomates are Negroes as are found in the general public.
4. In seventy-five percent of the colostomates, the surgery was done for cancer of the bowel.
5. The colostomate usually has little time before surgery and the hospital nurse is more likely to be the source of assistance than is a fellow ostomate.
6. One-tenth of all ostomates said that the ostomy procedure and results were not explained to them before surgery.
7. Colostomates tend to rank the routine of care and diet as being more important problems than acceptance of the colostomy and appliance.
8. Many more colostomies are performed each year, but ileostomates outnumber colostomates as members of mutual aid groups for persons with stomas.
9. Eighty-five percent of persons with stomas who held jobs at the time of their surgery return to work within six months. However, 265 out of the total sample of 3739 reported a change in jobs. Of the 265, 219 stated they had been refused jobs because of the ostomy. One-half of these or 115 felt that the refusal was based on ineligibility to participate in group insurance programs.

Summary

A summary of the general concepts in the review of the literature follows.

Physiology

Factors influencing absorption and secretion in the large intestine are (1) concentration of sodium in the fluid in the bowel lumen, (2) amount of fluid in the bowel, (3) hormones, and (4) disease states of the colonic mucosa including villous adenoma and multiple polyposis.

Distention of the lumen of the large intestine for even short periods of time can produce prolonged effects on intestinal circulation. The colon is more susceptible to the ischemic effects of distention because of its relatively low normal blood flow. Distention also affects cell renewal rates in the colon.

Colonic motility includes four types of right to left contractions of varying length and intensity. Narcotics and hypertrophied colonic musculature affect this motility.

Management of the Sigmoid Colostomy

Opinions vary on managing evacuation of the colostomy by irrigation or natural evacuation. In general, the popular method in the United States is irrigation, while in England and Denmark it is natural evacuation. Some persons state that a regular pattern of evacuation is

impossible without irrigation, while others cite patients using natural evacuation who have a regular pattern.

Rehabilitation

The literature indicates continued performance of colostomy surgery and the need for long-term rehabilitation of colostomates. These patients are using and need more enterostomal therapists and Stoma Clinics. One Stoma Clinic reports seeing more patients with colostomies than with ileostomies.

Demographic Statistics

A 1969 national demographic study published by the United Ostomy Association cites figures concerning age, ethnicity, reason for the colostomy, knowledge of the colostomy before the surgery, membership in mutual aid groups, care problems, and employment difficulties obtained through a survey of all ostomy clubs in the United States.

CHAPTER 3

METHODOLOGY

Explained in this chapter are the research design, the population, the tool, and the method of data collection and analysis used in determining what factors correlate significantly with method of management of the sigmoid colostomy.

Research Design

This descriptive study attempted to discover characteristics of patients significantly associated with different methods of management of evacuation of the sigmoid colostomy. Using a structured questionnaire designed by the researcher, with choices of answers arranged in ordinal and nominal scales, patients using different methods of management of the sigmoid colostomy were interviewed. The patients were members of the local ostomy club of a Southwestern metropolitan area.

The dependent variable in this study was the method of management of evacuation used: (1) by irrigation (a) daily or (b) less frequent; (2) by diet; (3) by medication; or (4) by natural evacuation. The independent variables were arbitrarily selected patient characteristics thought by the researcher to be of interest to nurses.

The Population

The enterostomal therapist at a local hospital provided the names of patients with sigmoid colostomies. Seventeen patients were contacted. These patients belonged to the local ostomy club, as did the therapist. This ostomy club was organized in 1967 and now has about 80 members. Two of the patients had recently moved out of the Tucson area, but the therapist felt they would be interested in completing the questionnaire. The researcher obtained permission for participation in the study from the patient.

These patients used different methods of colostomy management, although all had been taught to irrigate the colostomy if constipation occurred. All but three of the patients had their ostomy surgery performed in Tucson. All stomas were at least two months old.

The Tool

The researcher designed and used a structured questionnaire to interview sigmoid colostomy patients. Each question included a choice of answers arranged in a nominal or ordinal scale. Ordinal scales were used when the answer required choice of a degree, for example, of skin, odor, or gas problem. The patient chose the answer which best suited his personal experience with the question asked.

The questionnaire sought information about characteristics of sigmoid colostomy patients. The researcher

thought that interviews with several sigmoid colostomy patients might reveal patterns of characteristics which were associated with methods of management of the colostomy. A review of the literature and two days spent with the enterostomal therapist and a few of her patients provided the information which influenced the choice of characteristics and the choice of answers on the rating scales. The characteristics included are as follows:

1. Age.
2. Sex.
3. Reason for the colostomy.
4. Appliance used.
5. Are you using the appliance you were originally taught to use?
6. Length of time with the colostomy.
7. Type of management used.
8. Is this the method you were originally taught?
9. Do you have a bathroom in your home?
10. How many people use the bathroom?
11. Condition of the stomal mucosa and opening.
12. Skin irritation around the stoma.
13. Odor problem.
14. Gas problem.
15. Foods not tolerated since the operation.
16. Bowel habits before the operation.
17. Frequency of unexpected evacuations.

18. Satisfaction with method of colostomy management.
19. Change in life style since the operation.
20. Family's attitude after the operation.
21. Usual time spent daily on the colostomy.
22. Money spent monthly on the colostomy.
23. Are money matters involved in your choice of method of management of the colostomy?
24. Person who decided on your method of management.
25. Person who helped the most in adjusting to the colostomy.
26. Hospital and city where colostomy was made.

See Appendix A for the questionnaire.

Method of Data Collection

The researcher sent a letter of introduction to each sigmoid colostomy patient whose name had been suggested by the enterostomal therapist. The letter introduced the researcher and gave the enterostomal therapist's name as the referring party. This was also the therapist's suggestion. The letter explained the purpose of the questionnaire, assured the confidentiality of the patient's name and answers, and stated that the researcher would telephone the patient the next week to determine the patient's interest in participating in the study, and to arrange an interview or mailing of the questionnaire depending on the patient's preference. See Appendix C for the letter of introduction.

Telephone calls yielded eleven patients requesting interviews and two patients requesting that the questionnaire be sent by mail. Two other patients were interviewed by telephone. The two patients who had moved out of the area received the questionnaire along with the letter of introduction. The interviews were conducted in the patients' homes and the mailed questionnaires were returned to the researcher in a stamped envelope provided with the questionnaire.

Method of Data Analysis

The data were analyzed for significant statistical correlations using the chi-square test for non-parametric data.

CHAPTER 4

FINDINGS OF THE STUDY

The final sample for this study which attempted to find factors associated significantly with method of management of the sigmoid colostomy included seventeen persons with sigmoid colostomies. All were members of the local ostomy club of a Southwestern metropolitan area. Eleven persons answered the questionnaire during a personal interview conducted in the patient's home. Four persons answered it by mail and two answered it during a telephone interview. All subjects had had their colostomies for at least two months. The longest had had his for ten years as the result of an injury.

Characteristics of the Sample

The data were first considered on the basis of the entire group and percentages of the group answering the alternatives to each question determined (Table 1). Although this information did not provide an answer to the original question of the study, these percentages were useful in dichotomizing the variables according to the answers given, except for the yes-no questions. These variables were plotted against method of management of the colostomy in the analysis of the data by chi-squares.

Table 1. Responses to the Questionnaire

	Natural Evacuation	Irrigation	Total	Percent
1. Age				
46-65	3	9	12	71
66 or older	1	4	5	29
2. Sex				
Male	1	6	7	41
Female	3	7	10	59
3. Reason for colostomy				
Cancer	3	12	15	88
Injury	0	1	1	6
Other intestinal disease	1	0	1	6
4. Appliance used				
Disposable bag	4	7	11	65
Small dressing	0	6	6	35
5. Using appliance originally taught to use				
Yes	2	9	11	65
No	2	4	6	35
6. Age of colostomy				
2-12 mos.	1	3	4	24
13-24 mos.	2	3	5	29
25 mos.-5 yrs.	1	5	6	35
more than 5 yrs.	0	2	2	12
7. Method of Management				
Daily irrigation	0	10	10	60
Irrigation every other day	0	3	3	18
Natural evacuation	2	0	2	12
Natural evacuation with help	2	0	2	12
8. Using method originally taught				
Yes	1	13	14	82
No	3	0	3	18

Table 1.--Continued Responses to the Questionnaire

	Natural Evacuation	Irrigation	Total	Percent
9. Bathroom in home				
Yes	4	13	17	100
11. a. Condition of the stomal mucosa				
Healthy	3	10	13	76
Inflamed occasionally	1	1	2	12
Inflamed with bleeding points every few days	0	2	2	12
b. Condition of the stomal opening				
Revision done since original colostomy made	1	2	3	19
Tends to constrict but no revision necessary	0	2	2	14
No change in stomal opening size	2	9	11	69
12. Skin irritation				
No problem	3	10	13	76
Slightly red	0	2	2	12
Quite red and irritated	0	1	1	6
Very irritated and painful	1	0	1	6
13. Odor problem				
Everyday	1	1	2	12
Every few days	0	2	2	12
Every few weeks	2	6	8	47
Never	1	4	5	29
14. Gas problem				
Everyday	1	2	3	18
Every few days	0	2	2	12
Every few weeks	1	8	9	53
Never	2	1	3	18

Table 1.--Continued Responses to the Questionnaire

	Natural Evacuation	Irrigation	Total	Percent
16. Bowel habits before the operation				
Daily evacuation	3	5	8	47
Evacuation every two days	1	1	2	12
Irregular with constipation	0	3	3	18
Used cathartic or enema	0	4	4	24
17. Unexpected evacuations				
Everyday	1	0	1	6
Every few days	0	4	4	24
Every few weeks	0	5	5	29
Once or twice a year	2	2	4	24
Never	1	2	3	18
18. Satisfaction with method of management				
Satisfied	3	4	7	44
A bother	1	5	6	35
Want another method	0	4	4	25
19. Change in life style since colostomy				
No change	2	6	8	47
Some limitations	1	5	6	35
Many limitations	1	2	3	18
20. Family's attitude after the colostomy				
Helpful and sympathetic	4	11	14	93
Helpful but avoid subject	0	1	1	7

Table 1.--Continued Responses to the Questionnaire

	Natural Evacuation	Irrigation	Total	Percent
21. Time spent daily on colostomy				
Less than one hour	3	9	12	71
One or more hours but less than two hours	1	4	5	29
22. Money spent monthly on colostomy				
Less than $2.00	0	1	1	6
$2.00-$4.99	0	1	1	6
$5.00-$9.99	2	4	6	38
$10.00-$15.00	1	3	4	25
More than $15.00	1	3	4	25
23. Are money matters involved in choice of method of management?				
Yes	1	1	2	12
No	2	12	14	88
24. Person deciding on method of management				
My doctor	1	5	6	35
Enterostomal Therapist	0	6	6	35
Myself	3	2	5	29
25. Person who helped the most in adjustment to colostomy				
Family member	1	3	4	24
Ostomy Club	1	1	2	12
My doctor	0	1	1	6
Enterostomal Therapist	2	4	6	35
Other nurse in hospital	0	2	2	12
Other (myself)	0	2	2	12

Table 1.--Continued Responses to the Questionnaire

	Natural Evacuation	Irrigation	Total	Percent
26. City and hospital where colostomy was made				
Tucson, Arizona	3	11	14	82
Cleveland, Ohio	1	0	1	6
Chicago, Illinois	0	1	1	6
Los Angeles, California	0	1	1	6

Findings on the Questionnaire

The following paragraphs describe the number of persons and percent of the total group choosing the alternative answers to each question on the questionnaire.

Twelve of the seventeen patients or 71 percent were age forty-six to sixty-five, and five persons or 29 percent were age sixty-six or older. Seven or 41 percent were female, and ten or 59 percent were male.

The majority needed the colostomy because of intestinal cancer. Fifteen or 88 percent had had cancer, and one person each or 6 percent each had an injury or intestinal disease other than cancer.

The two appliances worn by this group of patients were a disposable bag or a small dressing. Of these two, 65 percent used a disposable bag and 35 percent used a small dressing. Sixty-four percent were using the appliance they were originally taught to use.

The length of time with the colostomy varied. Six or 35 percent had had it for twenty-five months to five years. Five of the group or 29 percent had lived with it for thirteen months to twenty-four months. Four or 24 percent had had the colostomy for less than one year but more than two months, and two persons or 12 percent had had it for more than five years.

Of the seventeen persons interviewed, ten or 59 percent used daily irrigation as the method of management of

evacuation. Three persons or 18 percent irrigated every two days and four or 24 percent used natural evacuation, two with the help of exercise or an occasional irrigation. One person had been able to train the colostomy to empty each morning after doing a series of exercises. Fourteen persons or 82 percent said that they were using the method they were originally taught to use. None of the persons lacked home bathroom facilities, and two persons at the most used each bathroom.

Most persons had few problems with the stoma itself. Thirteen, 76 percent, said that the stomal mucosa was usually pink, firm, and healthy in appearance. Two, 12 percent, said that it was swollen and inflamed occasionally, and two said that it was swollen and inflamed with tiny bleeding points every few days. The latter two had had their colostomies for more than one year. Both irrigated it everyday and wore a small dressing between irrigations. Rectal cancer necessitated the colostomy in both cases. Eleven persons, 69 percent, reported no change in stomal opening size since the colostomy operation. Three or 19 percent had had a revision done, and two, 14 percent, said that the opening tended to constrict but revision had not been necessary.

Variety existed in the frequency of accidents or unexpected evacuations. Five persons or 29 percent experienced this every few weeks, 24 percent once or twice

a year, 18 percent never had an unexpected evacuation, and 24 percent had one every few days. One person using natural evacuation reported an unexpected evacuation every day.

Satisfaction with method of management varied also. Sixteen persons answered this question. Seven persons or 44 percent said that they were satisfied with the method and found that it fit into their daily pattern of activities. Five or 31 percent said that it was a bother but had become used to it. Four or 25 percent of the persons who irrigated wished they could find another method.

No one said that they had added more activities to their life style since having the colostomy. No change in life style was reported by eight persons or 47 percent of the group. Six or 35 percent felt that they had to limit some of their activities and three or 18 percent had to limit most of their activities.

Bowel habits before the operation varied. Eight or 47 percent had had daily evacuations and two or 12 percent had had an evacuation every other day. Three persons or 18 percent of the group had had irregular bowel habits with a constipation problem, and four or 24 percent had had a constipation problem that sometimes required a cathartic or enema.

In all cases family support was positive. Two persons were not living with their families, but of the fifteen who were, fourteen or 93 percent said that their

families were usually helpful and sympathetic and one person said that they were helpful but avoided talking about it.

The three persons cited as having decided on the method of management used by the colostomate were the doctor, 35 percent; the enterostomal therapist, 35 percent; and the colostomate himself, 29 percent.

Problems with odor and gas varied from "never" to "everyday." Two or 12 percent reported a daily odor problem and three or 18 percent reported a daily gas problem. Two or 12 percent claimed gas and odor problems every few days. Eight persons or 47 percent had odor problems every few weeks and nine or 53 percent had gas problems every few weeks. Five persons or 29 percent never had odor problems and three never had gas problems.

No one spent more than two hours at a time taking care of the colostomy, and the majority, twelve or 71 percent, spent less than one hour at a time.

Money spent monthly on the colostomy was also an individual variable. Some persons enjoyed experimenting with new products while others made their own dressings at very little cost. Sixteen persons answered this question. One person, 6 percent, spent less than $2.00 per month and one person spent between $2.00 and $4.99. Six persons or 38 percent averaged between $5.00 and $10.00 per month. Eight or 50 percent spent more than $10.00. One person could not estimate how much he spent. Most persons, 88

percent, said that money matters were not involved in their choice of method of management of the colostomy.

In this group of colostomates very few had problems with skin irritation around the stoma. Thirteen or 76 percent had no problem. Two or 12 percent said that the skin was slightly red and two said that the skin was quite red, irritated, and painful.

The identification of persons who had helped the most in getting used to the colostomy was also mixed. No one identified a fellow ostomate. The person most often cited, 35 percent, was the enterostomal therapist. Three persons or 18 percent stated himself and three chose a family member. Two chose the ostomy club and two stated another nurse in the hospital. One person identified the doctor.

Answers to the question concerning foods not tolerated since the colostomy operation included roughage such as cabbage, beans, corn, cauliflower, coconut, and broccoli; fresh fruit such as oranges, cantaloupe, and pineapple; cold cuts and meat with fibers; smoked salmon; nuts; chocolate; onions and garlic; ice cream and milk; carbonated drinks; Chinese food or diced food; and hard bread. In most instances these foods caused gas or loose evacuations.

All but three of the colostomies were made at hospitals in this Southwestern community. The other three were performed in Los Angeles, Chicago, and Cleveland.

Findings Based on Method of Management

An attempt was made to find correlations between the independent variables and method of management of the colostomy. Division of the sample into two groups according to method of management of the sigmoid colostomy yielded thirteen persons who irrigated daily or every two days and four persons who used natural evacuation. The answers of these two groups to the questionnaire are found in Table 1. The group was dichotomized according to whether or not irrigation was used as the method of management of the colostomy. The independent variables, whether or not they were continuous data, were also dichotomized so that each independent variable could be correlated with the dependent variable using the chi-square test for correlation of non-parametric data. In all cases frequencies were small and degrees of freedom equaled one, requiring the use of Yates' Correction for Continuity in the computation of each chi-square. The dichotomized variables are listed in Appendix B. The researcher chose the dichotomies according to the percentages of answers given on the questionnaires.

Table 2 lists the chi-square obtained for each independent variable computed against irrigation versus

Table 2. Chi-squares: Method of Management

Variables	χ^2
Unexpected evacuations	7.973**
Method of management originally taught	7.745**
Bowel habits before the operation	6.222*
Appliance used	5.232*
Involvement of money matters in choice of method of management	4.747*
Satisfaction with method of management	3.418
Family's attitude after the operation	3.281
Person who decided on method of management	2.758
Length of time with the colostomy	2.508
Sex	1.787
Presently using appliance you were originally taught to use	1.114
Person who helped the most in getting used to the colostomy	1.114
Gas problem	.721
Time spent daily on the colostomy	.721
Age	.720
Skin irritation around the stoma	.567
Condition of the stomal opening	.365
Condition of the stomal mucosa	.353
Odor problem	.353
Money spent monthly	.339
Change in life-style	.191
Reason for the colostomy	.003

*Significant at the .05 level.

**Significant at the .01 level.

non-irrigation. All of the chi-squares obtained were insignificant except five.

The Significant Chi-squares

Method of management originally taught gave a chi-square of 7.745, significant at the .01 level, and unexpected evacuations gave a chi-square of 7.973, significant at the .01 level. Bowel habits before the operation gave a chi-square of 6.222, significant at the .05 level. Involvement of money matters in choice of method of management resulted in a chi-square of 4.747, significant at the .05 level, and appliance used resulted in a chi-square of 5.232, significant at the .05 level.

The Insignificant Chi-squares

Six chi-squares fell below .500. They were reason for the colostomy, .003; condition of the stomal mucosa, .353; condition of the stomal opening, .365; change in life style since the operation, .191; odor problem, .353; and money spent monthly on the colostomy, .339.

Computation yielded four chi-squares between .500 and 1.000. Age gave a chi-square of .720; gas problems, .721; time spent daily on the colostomy, .721; and skin irritation around the stoma, .567.

Three associations with irrigation versus non-irrigation with chi-squares between 1.000 and 2.000 were sex, 1.787; use of appliance originally taught to use,

1.114; and person who helped the most in getting used to the colostomy, 1.696.

The remaining four variables gave chi-squares between 2.000 and 3.841, the lower limit for the .05 level of significance with one degree of freedom. They were length of time with the colostomy, 2.508; satisfaction with method of management, 3.418; family's attitude after the operation, 3.281; and person who decided on method of management, 2.758.

Variables not Analyzed by the Chi-square Test

The variables not analyzed by use of the chi-square were hospital where the surgery was performed, foods causing problems after the operation, and presence of a bathroom in the home.

Additional Findings

Chi-square computations for associations between variables thought by the researcher to be of interest to nurses and to give clues for further study, although not answering the question of this study, are presented. The researcher also includes comments made by the patients during the interviews thought to be of interest.

Variables Computed Against Sex of the Patient

Table 3 gives the chi-squares for association between most of the variables on the questionnaire and the sex of the patient. Most were insignificant except for condition of the stomal mucosa, satisfaction with method of management, and skin irritation around the stoma. These three were significant at the .05 level.

Condition of the stomal mucosa gave a chi-square of 4.344. All of the men stated that their stomal mucosa was usually pink, firm, and healthy in appearance. Six of the ten women said this also. Four reported inflamation and/or tiny bleeding points every few days to every few weeks.

A chi-square of 4.297 was obtained for satisfaction with method of management. Nine women answered this question and eight said they were satisfied. Three of these eight used natural evacuation. The men differed with four of the seven reporting satisfaction.

Money matters yielded a chi-square of 4.390, with all of the men saying that money matters were not involved in their choice of method of management of the colostomy. Nine women answered the question and seven also said that money matters were not involved. The researcher does not have information concerning the financial status of the sample.

Table 3. Chi-squares: Sex

Variable	χ^2
Involvement of money matters in choice of method of management	4.390*
Condition of the stomal mucosa	4.344*
Satisfaction with method of management	4.297*
Gas problem	2.842
Skin irritation around the stoma	1.775
Odor problem	1.775
Length of time with the colostomy	1.417
Condition of the stomal opening	1.371
Reason for the colostomy	1.071
Method of management originally taught	.982
Person who helped the most in getting used to the colostomy	.365
Person who decided on method of management	.228
Money spent monthly	.226
Bowel habits before the operation	.147
Unexpected evacuations	.146
Change in life-style	.041
Family's attitude after the operation	.005
Presently using appliance you were originally taught to use	.001
Appliance used	.001
Time spent daily on the colostomy	.001

*Significant at the .05 level.

Variables Computed Against Satisfaction with Method of Management of the Colostomy

The researcher chose a group of variables to be computed against satisfaction with method of management of the colostomy. The dichotomies used for the variables were those listed in Appendix B. Table 4 lists the chi-squares obtained for association between these variables.

Table 4. Chi-squares: Satisfaction with Method of Management

Variables	χ^2
Change in life-style since the colostomy operation	6.750**
Money spent monthly on the colostomy	2.026
Condition of stomal mucosa	3.413
Skin irritation around the stoma	3.413
Use of method of management originally taught	.444

**Significant at the .01 level.

Change in life-style against satisfaction gave a chi-square of 6.750, significant at the .01 level. All four persons wanting a change in method of management had had to limit some or most of their activities. The other chi-squares were insignificant. Money spent monthly against satisfaction yielded a chi-square of 2.026. Condition of stomal mucosa resulted in a higher but insignificant chi-square of 3.413. Skin irritation also gave a chi-square of

3.413. Association between use of method of management of the colostomy originally taught and satisfaction was not significant, giving a chi-square of .444.

Miscellaneous Chi-squares

Use of method of management originally taught against person who decided on method of management gave a chi-square of 4.121, significant at the .05 level. Twelve of the thirteen patients using the method of management originally taught had been told to use this method by their doctor or enterostomal therapist. All four who were not using the method they were originally taught said that someone other than the doctor or enterostomal therapist had decided on this method. In all cases the patient himself made the decision to change.

Computation of appliance worn, disposable bag or small dressing, against use of appliance originally taught to use resulted in an insignificant chi-square of .485. In this sample, association between person who decided on method of management and person who helped the most in adjusting to the colostomy was insignificant, with a chi-square of .086.

Comments by Patients

The researcher found the following comments by patients interesting and of use to nurses working with colostomy patients.

Comments Concerning Management of the Colostomy. One patient could not regulate herself with irrigations. She found that the stool would come at various times and was liquid or very loose. She also said that the looser the stool the more odor. The watery stool loosens the seal on the colostomy bag and allows gas and odor to escape. When the seal is tight, she has no problem with odor. This person has been using natural evacuation for about two months now. The stool is more formed, and the patient is able to forget about the colostomy even though it empties about three times every day. She works full time and travels by herself.

Another patient used daily irrigation and felt bloated if she missed one day's irrigation. This person's history included a revision of the stoma about eighteen months after the original operation because of herniation.

A person who had difficulty with constipation most of her life before the colostomy operation now experienced constipation if the daily irrigation was skipped.

Another person also experienced a bloated feeling if he missed his daily irrigation, and was afraid that the stool would not come out if he did not irrigate. This person also stated the belief that daily exercising had firmed his abdomen and prevented unexpected evacuations for the past six months.

Two persons found that slight overeating would cause an unexpected evacuation during the evening or night. One had a natural evacuation each morning after exercising. The other irrigated every two days. Both had developed a regular routine of evacuation through the stoma.

Comments Concerning Skin Irritation and Odor. One person highly recommended A-D ointment. Another suggested Safeguard soap. For odor, one patient suggested Marsan's Ostomy Deodorant, an odorless deodorant, which she puts on a piece of cotton placed in the colostomy bag each day. This person found products such as Odors Away too heavily scented. Two persons used a belt to hold the colostomy bag in place, thereby avoiding sticking the bag to the skin.

Comments About the Ostomy Club. In general most patients found the Ostomy Club very helpful, but one person wished there was greater concentration on the daily problems of the ostomates themselves and less on surgical procedures and helping future ostomates pre-operatively. This person spent many months seeking satisfactory advice after his colostomy was made.

Another person supported the club saying that she had stayed home for the first two years after the colostomy operation because of constant drainage and skin irritation. She then discovered the enterostomal therapist and the Ostomy Club, was helped, and now says she would never drop

out. She only wishes there was transportation provided to club meetings.

Who do You Tell About the Colostomy? Although this question was not on the questionnaire and the researcher does not have specific numbers, patients expressed varying opinions about telling friends and co-workers about the colostomy. One person had told all her friends while another asked to terminate the interview because a neighbor came to the door and the patient did not want her to know anything about the colostomy.

Conclusion. In conclusion, these comments show the diversity of patient experiences with the sigmoid colostomy.

CHAPTER 5

DISCUSSION OF THE FINDINGS AND CONCLUSIONS

Interviews with seventeen sigmoid colostomy patients using different methods of management of evacuation of the colostomy yielded five significant correlations out of twenty-two, between the variables studied and management of the colostomy by irrigation versus non-irrigation, or natural evacuation.

The Significant Variables

Five of the independent variables did show significant associations or chi-squares with method of management, three at the .05 level and two at the .01 level.

Unexpected evacuations never or once or twice a year versus unexpected evacuations more often computed against irrigation versus non-irrigation gave a chi-square of 7.973, significant at the .01 level with one degree of freedom. Nine of the thirteen persons who irrigate have unexpected evacuations more often than once or twice a year. Of the other four, two never had an unexpected evacuation and two have had them once or twice a year. Three of the four persons using natural evacuation did not have an unexpected evacuation more than once or twice a year. Does this mean that their colostomies empty at the same time or

times everyday? One person has developed a routine of exercises performed each morning following which he has a natural evacuation. Another person, however, using natural evacuation, reports having an unexpected evacuation everyday.

The second significant chi-square was 7.745, significant at the .01 level with one degree of freedom, for the association between method of management originally taught and irrigation versus non-irrigation. All of the thirteen persons using irrigation reported that irrigation was the method of management of the colostomy they were originally taught. One of these persons had changed his irrigating pattern from everyday to every two days. Three of the four using natural evacuation said that this was not the method of management they were originally taught. Two of these persons have full-time jobs and do not have time to irrigate. Although the frequencies are small, this significant association supports the importance of initial teaching and the impression this teaching makes on the learner.

Bowel habits before the operation gave a chi-square of 6.222, significant at the .05 level, when computed against irrigation versus non-irrigation. All four persons using natural evacuation reported having regular bowel habits, a movement everyday or every two days, before the colostomy operation. Of those irrigating, five had had regular bowel

habits and eight had had irregular bowel habits and difficulties with constipation.

The fourth significant chi-square was 5.232, significant at the .05 level, for appliance used. All four persons using natural evacuation wore some kind of disposable plastic bag over the stoma. Seven irrigating used such a bag, and six wore a small gauze pad or other dressing.

The independent variable of involvement of money matters in the choice of method of management of the colostomy gave a chi-square of 4.747, significant at the .05 level with one degree of freedom, when computed against irrigation versus non-irrigation. Sixteen of the seventeen persons in the study answered this question. One of the patients using natural evacuation left it unanswered. In this sample, twelve of the thirteen persons using irrigation and two of the three using natural evacuation said that financial considerations were not involved in their choice of method of management of the colostomy. Since most persons in this study answered no to this question, the significant chi-square may have been due to the small frequencies and their chance arrangement in the cells of the chi-square contingency table.

Implications for Nursing from the Significant Variables

Based on this study, nurses counseling sigmoid colostomy patients about methods of management could say

that a person who had regular bowel habits before the colostomy operation might more likely make a successful adjustment to natural evacuation if he would like to try this method. He or she should probably wear a disposable bag at all times, whereas the person irrigating could wear a small dressing over the stoma between irrigations. The person irrigating should also be counseled to anticipate more unexpected evacuations between irrigations.

Also, most persons continue to use the method of management originally taught, irrigation in this sample of patients, emphasizing the impression that initial teaching makes on the learner. Nurses might take advantage of this to include the suggestion that various methods of management are possible.

The Insignificant Variables

Seventeen variables did not show significant correlations with method of management of the sigmoid colostomy.

Chi-squares Below 1.000

Ten variables yielded very low correlations, with chi-squares less than 1.000. These are briefly reviewed.

Reason for the colostomy gave a chi-square of .003. Twelve of the thirteen persons using irrigation and three of the four persons using natural evacuation reported cancer as the reason for the colostomy.

Condition of the stomal mucosa gave a .353 degree of association. Ten of the thirteen persons irrigating claimed pink, firm, and healthy appearing stomal mucosa, and three of the four using natural evacuation the same. Condition of the stomal opening gave a similar chi-square of .365. Nine of the thirteen irrigating had no change in the size of the stomal opening, as did two not irrigating.

Ten persons irrigating and three persons using natural evacuation said they had an odor problem every few weeks or not at all. Perhaps these persons had found effective deodorants. The chi-square for odor was .353.

Change in life-style did not significantly correlate with method of management in this sample, resulting in a chi-square of .191. Most persons found no change in their life-style. Inhibition, if there was any, concerned travel away from the home for extended periods.

Money spent monthly on the colostomy was an individual variable within the two groups, ranging from less than $2.00 to more than $15.00. The chi-square was .339. Some persons devised their own dressings with inexpensive items such as cotton or paper tissue.

The chi-square for age was .720. Nine persons irrigating and three not irrigating were between age 45 and 65. The rest were 66 and older. This age distribution supports the Cunningham (1969) study which found 75 percent of all colostomates over the age of 50.

Gas problems did not associate significantly with method of management, giving a chi-square of .721. Nine persons irrigating and three using natural evacuation had gas problems every few weeks or not at all.

Most persons in the study spent an average of less than one hour per day taking care of the colostomy, no matter which method of management was used. The chi-square here was also .721.

The association between skin irritation around the stoma and method of management was .567. The majority of the sample had no problem with skin irritation. Those who did all used some kind of adherent bag or dressing.

Chi-squares Between 1.000 and 2.000

Sex correlated with method of management gave a chi-square of 1.787. Six men used irrigation and one used natural evacuation. Three of the four persons using natural evacuation were women.

Use of the appliance originally taught to use gave a chi-square of 1.114 for association with method of management. Two persons who used natural evacuation still wore the appliance they were originally taught to use and two did not. Nine of the thirteen irrigating continued to use the original appliance. Six of these used a disposable bag and three were originally taught to use a small dressing or stomal cap between irrigations.

The person who helped the most in getting used to the colostomy correlated with method of management with a chi-square of 1.696. Four using irrigation and two using natural evacuation chose the enterostomal therapist.

Chi-squares Between 2.000 and 3.841

Length of time with the colostomy correlated 2.508 with method of management. Most of the persons using natural evacuation had had the colostomy for less than two years, while seven of the thirteen using irrigation had had it for more than two years.

In general most persons expressed satisfaction with the method of management they used, or else said that they had become used to it despite considering the procedure a bother. Correlation was at 3.418. Four persons irrigating but no one using natural evacuation wanted a change.

Fourteen of the fifteen persons responding to the question said that their families were helpful and sympathetic. The chi-square for this variable was 3.281. Only one person irrigating said that the family was helpful but avoided the subject.

The person who decided on the method of management of the colostomy gave a chi-square of 2.758 when correlated with the method. Three of the four persons using natural evacuation said that they had decided on this method themselves. Eleven of the thirteen irrigating and the fourth

person using natural evacuation all said either the enterostomal therapist or the doctor had decided on their method of management. The other two irrigating were not irrigating every two days and had decided themselves to change from a daily irrigation.

Implications for Nursing from the Insignificant Variables

Judging from this study, the nurse working with sigmoid colostomy patients and counseling them about methods of management of evacuations would be able to say that use of irrigation or natural evacuation will most likely not be associated with the condition of the stomal mucosa or opening, change in life-style, odor or gas problems, skin irritation around the stoma, or amount of money or time spent on the colostomy. The nurse could also say that most persons who are able to adjust to natural evacuation do not want to change methods, while one-third of the persons in this study using irrigation wished they could find another method.

Nursing could also note that in this study, where there was an enterostomal therapist, this person was the one most often cited as being the most helpful to the patient in getting used to the colostomy, and that a family member was the next most frequently cited person.

Implications for Nursing from the Additional Findings

In this study, women more often than men had problems with inflamation of the stomal mucosa, and women also more frequently expressed satisfaction with their method of management and claimed involvement of money matters in the choice of method of management.

Satisfaction with method of management also correlated significantly with change in life-style. The nurse, therefore, should help the patient find the method of management which requires the least change in pattern of daily living. Also, most persons did not change the method of management they were originally taught, and this initial teaching was most frequently done by the enterostomal therapist and the doctor.

Recommendations for Further Study

The researcher suggests the following topics for further study.

1. Learn how many sigmoid colostomates in the United States use natural evacuation, and how many use a combination of natural evacuation and irrigation.
2. Study attitude toward fecal elimination to determine if this correlates with acceptance or rejection of natural evacuation of the sigmoid colostomy.
3. Investigate the hypothesis that the patient finds it easier to successfully use natural evacuation after

he has once adjusted to the colostomy during a six month period, for example, of irrigation. Determine if the need to control the colostomy decreases as the patient becomes less self-conscious about the stoma.

4. Find out if dilation of the stoma is enough stimulation to initiate a natural evacuation.
5. Study persons using natural evacuation to see if they develop a regular pattern of evacuation.
6. Investigate the correlation of body weight and build with method of management of the sigmoid colostomy.
7. Conduct a controlled experimental study with new sigmoid colostomates, assigning some to irrigation, some to natural evacuation, and some to natural evacuation with an irrigation every week.
8. Repeat the study with a different ostomy club and a larger sample using the same questionnaire to see if results are similar.
9. Repeat the study with patients with sigmoid colostomies who do not belong to a mutual aid group.

CHAPTER 6

SUMMARY

The main points of the previous chapters of this study, including the purpose of the study, the methodology, and the findings and conclusions related to the original question of the study are reviewed.

Purpose of the Study

Different methods of management of the sigmoid colostomy exist, although the most popular method in the United States is irrigation. The researcher attempted to find characteristics of patients significantly associated with method of management of the sigmoid colostomy.

Methodology

Seventeen patients in a Southwestern metropolitan area ostomy club with sigmoid colostomies at least two months old answered a questionnaire designed by the researcher concerning the following items:

1. Age.
2. Sex.
3. Reason for the colostomy.
4. Appliance used.

5. Are you using the appliance you were originally taught to use?
6. Length of time with the colostomy.
7. Type of management of evacuation used.
8. Is this the method you were originally taught?
9. Do you have a bathroom in your home?
10. How many people use the bathroom?
11. Condition of the stomal mucosa and opening.
12. Skin irritation around the stoma.
13. Odor problem.
14. Gas problem.
15. Foods not tolerated after the operation.
16. Bowel habits before the operation.
17. Frequency of unexpected evacuations.
18. Satisfaction with method of colostomy management.
19. Change in life-style since the operation.
20. Family's attitude after the operation.
21. Usual time spent daily on the colostomy.
22. Money spent monthly on the colostomy.
23. Are money matters involved in the choise of method of management of the colostomy?
24. Person who decided on the method of management.
25. Person who helped the most in adjusting to the colostomy.
26. Hospital and city where the colostomy was made.

Using the chi-square test, dichotomized answers to the variables were analyzed for significant association with method of management. Thirteen patients used irrigation daily or every other day and four patients used natural evacuation.

Findings of the Study

Significant associations at the .05 chi-square level with method of management were appliance used, bowel habits before the operation, and involvement of money matters in the choice of method of management. Significant associations at the .01 level were method of management originally taught and unexpected evacuations.

The other variables were not significantly associated with method of management, although gave direction for further study.

Additional findings included significant correlations at the .05 level between sex of the patient and involvement of money matters in choice of method of management, condition of the stomal mucosa, and satisfaction with method of management.

Satisfaction with method of management correlated at the .01 level with change in life-style since the colostomy operation, and use of method of management originally taught correlated at the .05 level with the person who decided on the method of management.

Conclusions

Based on the statistically significant associations, the person using irrigation as the method of management of the sigmoid colostomy was more likely to have been taught this method originally and to have had more frequent unexpected evacuations. The person using natural evacuation would probably need to wear a disposable bag, and probably had regular bowel habits before the operation.

The insignificant associations suggested that many characteristics of patients with sigmoid colostomies were probably not affected by the method of management of evacuations used.

Concerning the sex of the patient, women were more likely to consider money matters in the choice of method of management of the colostomy, to claim problems with inflamation of the stomal mucosa, and to express satisfaction with their method of management.

Persons who experienced fewer changes in their pattern of daily living were also more likely to express satisfaction with their method of management. The researcher noted that satisfaction with the method of management correlated more with change in life-style than with particular method of management. Most persons did not change the method of management originally taught, and this initial teaching was most often done by the enterostomal therapist and the doctor.

These conclusions, when validated by replication, might be useful in counseling new sigmoid colostomy patients.

APPENDIX A

THE QUESTIONNAIRE

Age:
_____ Under age 25
_____ 25-45
_____ 46-65
_____ 66 and over

Sex:
_____ Male
_____ Female

Reason for the colostomy:
_____ Injury
_____ Cancer
_____ Intestinal disease other than cancer
_____ Other

Appliance used:
_____ Disposable appliance
_____ Permanent appliance
_____ Small dressing
_____ Nothing
_____ Other

Are you using the appliance you were originally taught to use?
_____ Yes
_____ No

Length of time with the colostomy:
_____ Less than two months
_____ Two months to 12 months
_____ 13 months to 24 months
_____ 25 months to five years
_____ More than five years

Type of management used:
_____ Daily irrigation
_____ Irrigation every two days
_____ Irrigation every three days
_____ Irrigation only in case of constipation
_____ No irrigation; dietary control
_____ No irrigation; cathartic

_____ Natural evacuation without diet or cathartic aid
_____ Dilation of the stoma
_____ Other

Is this the method you were originally taught?
_____ Yes
_____ No

Do you have a bathroom in your home?
_____ Yes
_____ No

How many people use the bathroom?
_____

Condition of the stoma:

Mucosa:
_____ Usually pink, firm, and healthy in appearance
_____ Swollen and inflamed occasionally
_____ Swollen and inflamed every few days
_____ Swollen and inflamed with tiny bleeding points every few days
_____ Constantly swollen and inflamed with tiny bleeding points

Opening:
_____ Revision done since original colostomy made
_____ Tends to constrict, but no revision has been necessary
_____ No change in stomal opening size since colostomy made

"Accidents"--unexpected evacuations:
_____ Everyday
_____ Every few days
_____ Every few weeks
_____ Once or twice a year
_____ Never had an "accident"

Satisfaction with method of colostomy management:

_____ Satisfied. It works for me and fits into my daily pattern of activities.
_____ It's a bother but I've gotten used to it.
_____ I definitely wish I could find another method.

Change in life-style since colostomy operation:

_____ I have added more activities.
_____ No change. I do just what I did before the operation.
_____ I have had to limit some of my activities.
_____ I have had to limit most of my activities.

Bowel habits before the operation:

_____ Daily evacuation.
_____ Evacuation every other day.
_____ Evacuation every three or four days.
_____ Irregular with constipation problem.
_____ Irregular with constipation problem that sometimes required a cathartic or enema.

Family's attitude after the operation:

_____ Usually helpful and sympathetic.
_____ Helpful but avoid talking about it.
_____ Avoid contact with me.

Person who decided on your method of management:

_____ My doctor.
_____ Enterostomal therapist
_____ Nurse in the hospital.
_____ Fellow ostomate
_____ Myself
_____ Other

Odor problem:

_____ Everyday
_____ Often; every few days
_____ Occasionally; every few weeks
_____ Never

Gas problem:

_____ Everyday
_____ Often; every few days
_____ Occasionally; every few weeks
_____ Never

Usual time spent daily on the colostomy:

_____ Less than one hour
_____ One or more hours but less than two hours
_____ Two to three hours
_____ More than three hours

Money spent on the colostomy every month:

_____ Less than $2.00
_____ $2.00 or more but less than $5.00
_____ $5.00 or more but less than $10.00
_____ More than $10.00 but less than $15.00
_____ More than $15.00

Are money matters involved in your choice of method of management of the colostomy?

_____ Yes
_____ No

Skin irritation around the stoma:

_____ No problem
_____ Slightly red
_____ Quite red and irritated
_____ Very irritated and painful

Person who has helped the most in getting used to the colostomy:

_____ Family member
_____ Fellow ostomate
_____ Ostomy Club
_____ My doctor
_____ Enterostomal therapist
_____ Other nurse in the hospital
_____ Other

What kinds of foods could you eat before the colostomy was made that you can't eat now? _____

Where was the colostomy made?

Hospital_____
City_____

Do you know of any other persons with colostomies who are here in Tucson temporarily?

Name_____
Address_____
Telephone_____

Name_____
Address_____
Telephone_____

APPENDIX B

DICHOTOMY OF EACH INDEPENDENT VARIABLE

Age	46-65 66 and over
Sex	Male Female
Reason for the colostomy	Cancer Other
Appliance used	Disposable appliance Other
Are you using the appliance you were originally taught to use?	Yes No
Length of time with the colostomy	Two years or less More than two years
Is this the method of management of the colostomy you were originally taught?	Yes No
Condition of the stoma	
Mucosa	Pink and firm Other
Opening	No change in size Other
Unexpected evacuations "accidents"	Once or twice a year, or never Other
Satisfaction with method of management	Satisfied, although it's a bother Want a change
Change in life-style since the operation	Has caused some limitations No limitations

Bowel habits before the operation	Regular pattern of evacuation Other
Family's attitude after the operation	Helpful and sympathetic Other
Person who decided on method of management	Enterostomal therapist or my doctor Other
Odor problem	Every few weeks or less Other
Gas problem	Every few weeks or less Other
Usual time spent daily on the colostomy	One hour or less More than one hour
Money spent monthly on the colostomy	$10.00 or less More than $10.00
Are money matters involved in your choice of method of management of the colostomy?	Yes No
Skin irritation around the stoma	Problem with skin irritation No problem
Person who helped the most in getting used to the colostomy	Enterostomal therapist Other

APPENDIX C

LETTER OF INTRODUCTION SENT TO EACH PATIENT

Date _____

Dear _____,

Mrs. Virginia Vukovich, the Enterostomal Therapist at Tucson Medical Center, has given me your name as a member of the Mission Ostomy Club. I am a registered nurse in the graduate nursing program at The University of Arizona this year and am interested in finding out more about how people with colostomies get along with them.

Would you be interested in answering a questionnaire including such items as the following: length of time with the colostomy, reason for the colostomy, method of management of evacuation used, and persons who have helped you adjust to the colostomy? I will telephone you next week to see if you might be interested.

I would be happy to send you a summary of my findings. The findings will not be associated with individual names.

Thank you for your consideration.

Sincerely,

Miss Judith Ann Werner, R.N.

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