Southern Online Journal of Nursing Research
Issue 8, Vol. 2, December 2001

www.snrs.org

Utility of Video Modeling as an Adjunct to Preoperative Education

Helene J. Krouse, PhD, APRN,BC, CORLN
Jo Ann Fisher, MSN, ARNP
Hossein N. Yarandi, PhD

Helene J. Krouse, PhD, APRN,BC, CORLN
Professor
Wayne State University
Detroit, Michigan

Jo Ann Fisher, MSN, ARNP
Family Nurse Practitioner
Satellite Beach, Florida

Hossein N. Yarandi, PhD
Associate Professor
University of Florida
College of Nursing and Biostatistics Unit
Gainesville, Florida

ABSTRACT

This experimental study investigated the effectiveness of nursing-based videotaped instruction in increasing knowledge, improving self-care practices, and facilitating postoperative recovery among patients undergoing nasal surgery. Patient participants were randomly assigned to one of two treatment groups: 1) standard preoperative education and 2) standard preoperative education plus videotaped instructions. Symptom management, quality of life, knowledge level, and importance of specific treatments were assessed preoperatively and at one and four weeks postoperatively. Analysis of variance was used to compare group differences and changes with time. Several significant findings were noted over time, however no significant differences were found between the two groups. Knowledge scores significantly increased for both groups from preoperative to

postoperative assessments. Values on the quality of life scale significantly improved on one-month follow-up for all patients. Significant increase in knowledge, improved quality of life, and symptom management indicate positive postoperative outcomes for patients. Adequate patient teaching prior to surgery has beneficial effects over the postoperative period. Nursing-designed patient videotaped instruction in place of individualized nurse-patient teaching could be a cost effective method of preoperative education.

Key Words: Videotape, Modeling, Patient Education, Postoperative Outcomes, Self Care

---

Utility of Video Modeling as an Adjunct to Preoperative Education

Changes in the delivery of health care services resulting from technological advances, innovative surgical techniques, and economic and political pressures have promoted an increase in outpatient surgical procedures.[1] Many procedures once performed in traditional hospital settings are now done in ambulatory surgical centers. This transformation in surgical care setting allows only minimal patient-nurse contact time prior to discharge from the facility postoperatively, requiring patients to assume greater responsibility for their own care. Therefore, it is imperative that non-professional caregivers are effectively educated to provide care for themselves or family members so that desired treatment outcomes are achieved.[2] The purpose of this study was to investigate the efficacy of nursing-based "video modeling" materials for patients undergoing nasal and sinus surgery in increasing patient knowledge, improving self-care practices with postoperative care regimens, and facilitating postoperative healing.

Educational materials designed to facilitate information acquisition and practice for patients and caregivers are a priority in nursing care.[3] The current popularity of multimedia presentations suggests that nursing-based videotaped

[1] Manoukian, P.D., Wyatt, J.R., Leopold, D.A., & Bass, E.B. (1997). Recent trends in utilization of procedures in otolaryngology-head and neck surgery. *Laryngoscope, 107*, 472-475.

[2] Lindsey, A. M. (1997). Nursing scholarship: Accountability for outcome. *Image: Journal of Nursing Scholarship, 29*, 224.

[3] Lisko, S. A.(1995). Development and use of videotaped instruction for preoperative education of the ambulatory gynecological patient.

gynecological patient. *Journal of Post Anesthesia Nursing, 10*, 324-328.

instructional materials utilizing "video modeling" can empower patients in self-care practices, thereby improving compliance with postoperative treatment regimens. Video instruction developed by nurses, for use in the office and home, can be an effective method of educating non-professional caregivers in specific practices necessary for self-care or home-care of a family member.[4] Yale[5] found when videotaped instruction is provided in the patient's home, it can be an economical, effective, and convenient way to motivate learning and enhance desired outcomes. Nursing-designed patient educational materials can be powerful tools for enabling patients in performing self-care activities. Video instruction, which combines elements of visualization and video modeling techniques, can be effectively incorporated by nurses to further enhance patient teaching for achieving desired outcomes.[6]

[4]Courtney, R. & Rice, C. (1997). Investigation of nurse practitioner-patient interactions: Using the nurse practitioner rating form. *Nurse Practitioner, 22*(2), 46-48; 54-57; 60; 65.

[5] Yale, E. (1993). Preoperative teaching strategy: Videotapes for home viewing. *AORN Journal, 57*, 901-908.

[6]Gagliano, M. E. (1988). A literature review on the efficiency of video in patient education. *Journal of Medical Education, 63*, 785-792.

The advancement of endoscopic surgery in many surgical specialties has helped to significantly reduce hospitalizations and increase same day surgery.[7] One class of surgery that is now predominately performed on an outpatient basis is nasal and sinus surgery. Sinus surgical procedures are among the most common operations performed in the United States, with over 200,000 cases completed yearly.[8]

[7]Manoukian, 1997.

[8]Kennedy, D. W., Shaman, P., Han, W., Selman, H., Deems, D. A., & Lanza, D. C. (1994). Complications of

ethmoidectomy: A survey of fellows of the American Academy of Otolaryngology-Head and Neck Surgery. *Otolaryngology-Head and Neck Surgery, 111,* 589-599.

For patients undergoing nasal and/or sinus surgery, standard patient education involves the use of verbal instructions by physicians and nurses, often delivered during a brief session prior to the day of surgery.[9] Patient memory of these instructions is often inadequate due to anxiety and feelings of uncertainty. Videotapes for patient education have enhanced assimilation of information and short-term knowledge.[10] Educational videotapes have also been useful in decreasing patients' anxiety prior to procedures and psychotherapy.[11,12] Instructional material can be standardized by using videotapes, assuring the same content for all patients. Patients may also require reinforcement of information and can view the tape on multiple occasions. Patient instructional sheets or pamphlets are frequently used but are often written at a reading level that many individuals cannot comprehend.[13] An important benefit of

[9]Krouse, H. J., Krouse, J. H., & Christmas, D.A. (1997). Endoscopic sinus surgery in otorhinolaryngology nursing using powered instrumentation. *ORL-Head and Neck Nursing, 15* (2), 22-26.

[10]Schapira, M. M., Meade, C., & Nattinger, A. B. (1997). Enhanced decision-making: The use of a videotape decision-aid for patients with prostate cancer. *Patient Education and Counseling, 30*, 119-127.

[11]Robertson, C., Gatchel, R. J., & Fowler, C. (1991). Effectiveness of a videotaped behavioral intervention in reducing anxiety in emergency oral surgery patients. *Behavioral Medicine, 17*(2), 77-85.

[12]Deane, F. P., Spicer, J., & Leathem, J. (1992). Effects of videotaped preparatory information on expectations, anxiety, and psychotherapy outcomes. *Journal of Consulting and Clinical Psychology, 60,* 980-984.

[13]Streiff, L. D. (1986). Can clients understand our instructions? *Image:*

Journal of Nursing Scholarship, 18, 48-52.

using videotaped instructions preoperatively, therefore, is the enhancement of learning in patients with low literacy skills and in elderly patients who have visual difficulties in reading small printed documents.[14] Use of nurse-developed videotaped instruction can also be beneficial and cost effective in delivering standardized information to more patients in a timely manner.

[14]Meade, C. D. (1996). Producing videotapes for cancer education: Methods and examples. *Oncology Nursing Forum, 23,* 837-846.

Patients who adhere to prescribed postoperative regimens of medical and nursing therapies following nasal and sinus surgery may have better outcomes and therefore more positive long-term benefits related to their quality of life than patients who fail to follow these recommendations. Adherence to these protocols can be less than optimal, especially as the period of time following surgery lengthens. Since failure to continue these treatments and prescription medications can lead to decreased symptomatic relief and the need for recurrent surgical intervention, strategies that increase patient

adherence would have both short-term and long-term implications in improving patient care.[15]

[15]Larsen, K. & Tos, M. (1994). Clinical course of patients with primary nasal polyps. *Acta Otolaryngologica, 114,* 556-559.

Theoretical Framework

Bandura's Social Cognitive Theory provides a framework for understanding the use of video modeling to improve specific postoperative behaviors by patients. According to social cognitive theory, behavioral competencies, social competencies, and cognitive skills, are acquired through observational learning. The individual observes the modeled event and forms a cognitive construct, which shapes future behavior. Through the representation of the model, the individual observes benefits of the modeled procedure and is motivated to match behavior to that of the observed individual.[16]

[16]Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory.* Englewood Cliffs, New Jersey: Prentice-Hall.

Learning through vicarious experiences, such as modeling, can promote feelings of self-efficacy regarding these specific behaviors.[17] Desired skills and acquisition of knowledge can be

[17] Bandura, A. (1997). *Self-Efficacy: The Exercise of Control.* New York: W.H. Freeman.

skills and acquisition of knowledge can be effectively taught through observation of proficient models demonstrating these behaviors.[18]

[18]ibid, p.91

Video modeling

One of the strongest benefits of videotaped presentations is the process of ”behavioral modeling” or “video modeling." This “video modeling” involves demonstrating desired behaviors, outcomes, and attitudes through active, visual representations.[19] Video modeling allows the viewer to identify with the model performing the activity, as well as perceiving that one is also capable of effectively engaging in similar behaviors. According to Gagliano,[20] video modeling is one of the strongest benefits in using videotaped presentations.

[19]Gagliano, 1988

[20]ibid.

Incorporation of “video modeling” into postoperative nursing care for patient use at home can prepare patients to effectively care for themselves in order to decrease complications and promote healing after surgery. Patients

requiring additional reinforcement of information can view the tape on multiple occasions at their own convenience.[21] Video instruction developed by practitioners has been shown to be effective in reinforcing patient teaching.[22] A quasi-experimental study conducted on patients undergoing total knee arthroplasty revealed that patients receiving videotaped postoperative exercises performed these exercises more regularly and with greater accuracy than a non-video control group.[23] In another study, coping skills and self care behaviors demonstrated on videotapes were found to be effective in assisting patients to anticipate and manage sensations associated with chemotherapy.[24]

An integrative research review on video modeling and patient education concluded that video modeling can be an effective way to educate patients in several ways.[25] Videotapes were useful in educating individuals about the various

[21] Minton, P. N. (1983). Videotape instruction: An effective way to learn. *Rehabilitation Nursing, 8* (3), 15-17.

[22] Courtney, 1997

[23] Lin, P. C., Lin, L. C., & Lin, J. J. (1997). Comparing the effectiveness of different educational programs for patients with total knee arthroplasty. *Orthopaedic Nursing, 16,* 43-49.

[24] McDaniel, R.W. & Rhodes, V. A. (1998). Development of a preparatory sensory information videotape for women receiving chemotherapy for breast cancer. *Cancer Nursing, 21,*143-148.

[25] Krouse, H. J. (2001). Video modelling to educate patients. *Journal of Advanced Nursing, 33,*748-757.

risks and benefits of specific treatment options. Preparatory videotapes using video modeling were also beneficial in reducing anxiety and physiological arousal prior to medical procedures. Video modeling was also effective in increasing the rate of performing specific self-care practices and desired behaviors.[26] Videotapes incorporating video modeling behaviors should facilitate patient acquisition of specific behaviors in order to perform postoperative care regimens with greater proficiency and consistency. The ultimate goal of postoperative care and performance of desired behaviors is to improve surgical outcomes, reduce complications, and promote healing,[27] thereby enhancing one's quality of life.

[26]ibid.

[27]Krouse, H. J. (1997). Nursing care of the patient undergoing powered endoscopic sinus surgery. In J. H. Krouse & D. A. Christmas (Eds.). *Powered endoscopic sinus surgery* (pp.111-121). Baltimore: Williams & Wilkins.

The following hypotheses were tested in this study:

Patients receiving the nursing-based videotape instruction at home in combination with standard preoperative patient teaching:

H1: demonstrate greater knowledge of postoperative care following nasal and sinus surgery than patients receiving only standard preoperative instruction;

H2: indicate greater perception of the importance of elements of the postoperative regimen of care following nasal and sinus surgery than patients receiving only standard preoperative instruction;

H3: perceive less disability and have better scores on a quality of life scale following nasal and sinus surgery than patients receiving only standard preoperative instruction;

H4: experience better postoperative healing than patients receiving only standard preoperative instruction.

Methods

*Design***.** The study involved a two-group experimental design. Patients undergoing nasal or sinus surgery were randomly assigned to one

of two treatment groups. The control group received standard preoperative teaching in the office prior to surgery. The experimental group received the standard preoperative teaching plus a videotape demonstrating specific postoperative care measures. Subjects completed several questionnaires preoperatively and postoperatively during week one and week four.

Sample. The final sample consisted of 52 patients undergoing nasal or sinus surgery. Twenty-eight subjects were in the experimental group and twenty-four were in the control group. Initially 60 subjects were enrolled and randomly assigned to one of the two treatment groups. A total of eight subjects, four in each group, did not return for the final one-month follow-up, even after being contacted several times by the nurse, and were therefore excluded from final data analysis. Patients in a private otolaryngology practice, who were undergoing nasal and/or sinus surgery between September 1998 through June 1999, were invited to participate in the study. The researcher invited all eligible patients

to participate in the study at the time of their preoperative visit. None of the patients who were asked to participate declined and each person was enrolled in the study. All subjects enrolled in the study indicated that they had access to a VCR player at home.

The sample consisted of 32 men and 20 women ranging in age from 18 to 86 years (M=53.9; SD=17.3) with similar distributions in both groups. Of these subjects, 27% had undergone previous nasal or sinus surgery and only 17% were smokers. A third of the subjects indicated that they had a positive history for allergies. There were no significant differences on demographic characteristics between the two groups as illustrated in Table 1.

Instruments. Collection of demographic information on each subject involved completion of standard health history and allergy history forms currently in use in the office. A tool to measure knowledge level (*Knowledge Index*)

concerning postoperative practices and care was developed by the investigator based on standard preoperative teaching materials. This instrument consists of 20 true-false questions about the postoperative recovery period and related care. It assesses a person's understanding of what normally occurs postoperatively, how to care for the surgical area, and "Do's and Don'ts." Scores on the *Knowledge Index* are computed as the sum of the number of correct answers on the tool. An initial pool of 60 questions was developed by the researcher based on the standard preoperative instruction for patients undergoing nasal and sinus surgery. Three experienced otolaryngology nurses then independently selected the 30 items they felt best represent elements of the postoperative knowledge base for surgical patients. The 20 items that consistently reflected the opinions of these three nurses were then included as the final *Knowledge Index*. A Cronbach Alpha coefficient of the *Knowledge Index* was computed to estimate the internal consistency of this

instrument. An α coefficient of 0.74 was obtained. This initial test of reliability suggests that the instrument has good initial internal consistency.

The *Sinus Treatment Follow-Up Scale* (STFS), an instrument developed by Krouse & Krouse,[28] consists of a 20-item self-report questionnaire in which subjects are asked to rate the importance of various practices and treatments that they used during their postoperative recovery period. The STFS is an interval scale that utilizes a four-point rating ranging from 0 – 3, with 0 meaning "not important" to 3 meaning "very important." Mean scores can be computed based upon rated importance given to each item. An outside practitioner in the field of otolaryngology reviewed items included on the tool. Previous use of the scale with a population of sinusitis patients and normal individuals revealed that it was able to discriminate between these groups.[29]

[28] Krouse, H. J. & Krouse, J. H. (1999). Complementary therapeutic practices in patients with chronic sinusitis. *Clinical Excellence for Nurse Practitioners, 3*(6), 346-352.

[29] ibid.

The *Rhinosinusitis Disability Index* (RSDI),

developed by Benninger and Senior,[30] is a global quality-of-life measurement tool for patients with sinusitis consisting of 30 items which are self-rated by patients. It has been validated as an instrument in measuring not only the physical component of nasal and sinus disease, but the functional and emotional impact of the diseases as well. Factor analytic procedures were used to extract three subscales—physical, emotional, and functional—with good utility as an index of the construct validity of the tool. The RSDI has been shown to discriminate well between patients and controls, with a significance of .01 or less, also an indicator of its validity.[31]

Healing was assessed through an examination of the surgical site in the nasal and sinus cavities by the surgeon, who was blind to the subject's assigned treatment group. The endoscopic rating involved an objective assessment of the nasal cavity on four separate factors: nasal discharge, nasal edema, nasal crusting, and nasal obstruction. Each of the four factors was graded

[30] Benninger, M. S. & Senior, B. A. (1997). The development of the Rhinosinusitis Disability Index. *Archives of Otolaryngology-Head and Neck Surgery, 123,* 1175-1179.

[31] ibid.

by an experienced otolaryngologist with scores ranging from 1 – 4, with 1 signifying the absence of any pathology and 4 signifying severe pathology.

Procedure. Subjects were randomly assigned to one of two treatment groups: (1) the control group received standard preoperative education by the nurse, including verbal and written instruction; and (2) the experimental group received standard preoperative education plus a nursing-based videotape on postoperative care following nasal and sinus surgery. This videotape is approximately 10 minutes in length. The entire study protocol and consent form were reviewed and approved by the University of Florida Institutional Review Board.

At the preoperative visit, each subject underwent an evaluation by the surgeon, which also included rating the subject's nasal and sinus cavities. Following this examination each subject completed the RSDI and the Knowledge Index

prior to initiation of preoperative teaching by the nurse. Standard preoperative instruction, with the same otorhinolaryngology nurse, was conducted in the office usually within one week of the surgery. All subjects received written materials that outlined the steps involved in proper nasal irrigation techniques and the "do's and don'ts" following surgery. One instructional sheet also provided several diagrams illustrating the proper technique for performing nasal irrigations. These written instructional sheets are standard teaching materials and used widely in the field of otolaryngology.[32]

[32]Sigler, B. A. & Schuring, L. T. (1993). *Ear, Nose, and Throat Disorders*. St. Louis: Mosby.

Following this standard preoperative education, an office staff member randomly assigned the subject to one of the two treatment groups and maintained a list of the subjects in each group. This information was not shared with the researcher or the surgeon during the study period. Based on this random group assignment, the subject either left the office with written materials or stayed to watch the videotape. The

experimental group received a 10-minute videotape, developed by the researcher that showed three models performing the desired behaviors, a middle-aged woman, a middle-aged man, and a young woman. These individuals demonstrated specific postoperative practices with the objective that viewers would see people similar to themselves performing these activities successfully and see themselves as capable of performing their own postoperative care.[33] Prior to using the videotape in this study, several patients previewed the tape and were asked questions regarding its content to assess appropriateness and level of information. No difficulties were noted in use of the videotape in this outpatient setting. After viewing the videotape in the office, subjects in the experimental group were given a copy of the videotape, by the staff member, to view at home along with standard written materials. To reduce any biases the nurse who provided preoperative instruction and the surgeon were blind as to the subject's treatment group.

[33] Bandura, 1997, p. 87

The first postoperative visit was conducted within one week following surgery. At this visit, subjects took a post-test to re-assess their knowledge about their postoperative recovery period and completed the Sinus Treatment Follow-up Scale (STFS) to assess the importance of various components of their postoperative care. The surgeon also rated the physical appearance and cleanliness of the surgical site on degree of crusting, edema, drainage, and obstruction. At the one-month postoperative visit, the surgeon once again rated the appearance and cleanliness of the surgical site as an indicator of postoperative healing. Subjects completed the RSDI to assess any changes in their symptoms and quality of life scores from preoperative scores (Diagram 1).

Results

All subjects in the experimental group viewed the videotape first in the office; 75% stated that they had viewed the video at least one additional time

at home. Hypothesis 1 was tested using a two-way repeated measures analysis of variance (ANOVA) to compare pre- and post-test Knowledge Index scores between groups. There was a significant improvement in knowledge score for both groups following preoperative instruction over time, $F(1, 50)= 25.43$ ($p<.0001$), however group x time interaction was not significant.

Mean scores of the rated importance of each of the items on the *Sinus Treatment Follow-Up Scale* during the postoperative period were computed and compared between the two groups using a two-way ANOVA (Hypothesis 2). Of the 20 items rated on the scale, eight items were rated as important self-care practices by subjects and depicted in Table 2. Both groups rated nasal irrigation and use of saline sprays as the two most important self-care measures practiced during the postoperative period. The percentage of subjects who rated the practice of nasal irrigation as important in relieving symptoms

postoperatively was 96% for the experimental group and 100% for the control group. One hundred percent of subjects in both groups rated saline sprays as important in their postoperative care. Both the experimental and control groups also rated most medications including antihistamines, decongestants, and over-the-counter medications as least important to their postoperative care. Use of antibiotics was important in the first week postoperatively since subjects received prescriptions for perioperative antibiotics but were no longer taking these medications by the one-month follow-up. A comparison of differences in perceived importance of specific postoperative measures between the groups yielded no significant differences.

The third hypothesis compared the two treatment groups on their severity of symptoms, perceived limitations, and quality of life related to their sinus disease. The three subscale scores of the RSDI—physical, functional, and

emotional—were computed separately for each group and compared preoperative scores to one-month postoperative scores. Means and standard deviations for the three scales are depicted on Table 3. Two-way repeated measures ANOVA was calculated to compare effects over time as well as group x time interaction. Higher scores signified poorer adjustment and lower scores corresponded to perceptions that are more positive. Over time, there was a significant decrease in the mean scores on the three quality of life subscale scores in both groups. Scores on the RSDI Physical subscale significantly improved at the one month follow-up for both groups, $F(1,50)=11.06$ ($p<0.002$). The RSDI Emotional and Functional subscale scores at one month follow up also showed significant improvement from preoperative scores across both groups. The time effect for the RSDI Emotional subscale was $F(1,50)=11.14$ ($p<0.0016$), and $F(1,50)=9.21$ ($p<0.0038$), for the Functional subscale.

Assessment of postoperative healing (Hypothesis 4) was based on the surgeon's evaluation of the surgical site for crusting, edema, discharge, and obstruction at the one week and one month postoperative visits. Significant improvements in the surgical area were noted in both groups over time with no significant differences between the two groups using a two-way repeated measures ANOVA, treating individual ratings as discrete interval data points. The greater amount of crusting noted at one month in comparison to the preoperative assessment reflects the observation that complete healing is often not appreciated until six to eight weeks following surgery. These results are presented in Table 4.

Discussion

This experimental study compared the effectiveness of standard preoperative patient instruction to preoperative instruction using a nurse-based videotape in conjunction with standard preoperative teaching for patients undergoing nasal and sinus surgery. The two

treatment groups were followed preoperatively through one month follow up and compared on level of knowledge related to postoperative care, perceived importance of self-care practices, complications and healing, and perceived quality of life related to their sinus disease. The use of specific postoperative care measures that patients perform at home following surgery is designed to reduce the risk of complications, promote healing, and optimize desired treatment outcomes. Because the majority of surgical procedures are performed on an outpatient basis, greater responsibility for postoperative care is placed on patients and families. Therefore, the role of adequate patient instruction prior to surgery has become even more important in facilitating optimal outcomes.

Both treatment groups received extensive preoperative instruction, with a registered nurse specialized in otolaryngology nursing, prior to undergoing nasal and sinus surgery. The addition of a nurse-based instructional videotape viewed

by patients at the office and at home was designed to reinforce information and demonstrate specific self-care practices that patients were to engage in at home. Results of this study revealed several significant findings. Subjects in both the experimental and control groups scored significantly higher on the *Knowledge Index* questionnaire following surgery even though level of knowledge was not reassessed until one week after surgery. The majority of patients received preoperative instructions up to one week before surgery and still retained a significant amount of information about appropriate care measures when re-tested at their first postoperative visit. This indicates that most patients understand and retain preoperative information independent of the educational method. Instructions that occur up to one week preoperatively still promote adequate knowledge acquisition and retention of information over the postoperative period. Steinberg, Diercks, and Millspaugh,[34] found that a videotape used in conjunction with other educational methods is an effective strategy for

[34]Steinberg, T. G., Diercks, M. J., & Millspaugh, J. (1996). An evaluation of the effectiveness of a videotape for discharge

teaching of organ transplant recipients. *Journal of Transplant Coordination, 6*(2), 59-63.

educational methods is an effective strategy for teaching discharge planning to transplant patients. Since the videotape was used in addition to an individual session with the transplant nurse, similar to this study design, one cannot determine whether videotaped instructions used alone would be an effective method of instruction. The use of illustrative drawings as part of the standard preoperative educational materials may have provided visual cues of specific self care behaviors, similar to those portrayed in the videotape, thus assisting subjects in performing these activities.

Several studies have shown the effectiveness of patient education and use of videotapes for increasing knowledge with limited change in desired behaviors.[35] While patients did demonstrate a significant increase in knowledge with preoperative instruction, they also rated several self-care measures including nasal irrigation and use of saline spray as very important practices and frequently engaged in these activities. Nearly 100% of patients in both

[35]Gagliano, 1988

groups reported that these postoperative care practices, emphasized by the nurse in preoperative instruction and demonstrated on the videotape, were very important in their postoperative care. The inclusion of nasal irrigation and sprays is widely used in postoperative practice for patients who undergo nasal and sinus surgery; however, it has not been systematically evaluated for effectiveness in relieving symptoms, promoting healing, or usage by patients. Results of this study indicate that nasal irrigations and saline sprays are rated as the most important components of the postoperative regimen by patients.

In this study, the addition of the videotaped instruction to the standard preoperative information did not significantly improve the effects of these practices in the experimental group, since both groups demonstrated significant improvements over time in postoperative healing and on the quality of life measure. According to social-cognitive theory, a

person will choose to engage in specific behavior that he or she has acquired based on observational learning of competent models.[36] In this study, it appeared that the inclusion of videotape based on video modeling did not significantly add to the patient's perceived importance of the specific postoperative behaviors. One explanation might be that the tasks were relatively simple procedures related to proper administration of medications and nasal irrigation and that most patients were able to perform these behaviors competently and expected them to positively influence their postoperative outcome. It was interesting to find that the specific postoperative care measures taught by the nurse as part of patient care were identified to be of importance to the patient during the postoperative period.

[36]Bandura, 1986.

Although the addition of the videotape to standard preoperative education in this study did not further improve postoperative outcomes, other studies have demonstrated the positive

impact of videotaped instruction on increasing desired practice outcomes. In one study about desired safe sex, behaviors were enhanced through video-based intervention in Black and Hispanic men and women. The video intervention significantly impacted on the knowledge, attitudes, and behaviors related to condom acquisition in men and women who participated in this educational program.[37]

[37]O'Donnell, L., San Doval, A., Duran, R., & O'Donnell, C. R. (1995). The effectiveness of video-based interventions in promoting condom acquisition among STD clinic patients. *Sexually Transmitted Diseases, 22,* 97-103.

In terms of the quality of life measure, assessing physical, emotional, and functional adjustment, subjects in both groups experienced positive changes in these aspects of their lives following surgery. Scores on the three quality of life subscales—physical, emotional, and functional—significantly decreased over time for patients indicating better adjustment and less disability related to their sinus disease. Although there were no significant differences on these measures between the experimental and control groups

over the postoperative period, scores on the physical subscale of the RSDI showed greater improvement for individuals in the experimental group. The majority of subjects engaged in recommended activities to relieve symptoms and promote healing. These activities could be expected to assist them in realizing improved physical, emotional, and functional wellbeing resulting from their surgery and related care.

The performance of more outpatient surgeries followed by limited postoperative care by practitioners will require patients to assume greater responsibility for their own postoperative management. Subsequent positive outcomes from surgical procedures will depend on an informed, well instructed, and confident person who is able to provide proper self care or care for a family member at home. The powerful potential for patient education to influence these desired outcomes cannot be underestimated and warrants further development and scientific analysis by nurses.

Conclusions

There is clear evidence from this and other studies that preoperative patient instruction increases patients' knowledge about their surgery and postoperative care, fosters positive postoperative care practices to promote healing and reduce complications, and enhances overall quality of life following surgery. The method of instruction seems to be less significant in effecting change in knowledge and desired behaviors than the fact that any preoperative education is conducted.

The use of videotaped instruction alone in place of individualized nurse-patient teaching could be more cost effective than traditional teaching methods if the outcomes are equivalent. However, further research is needed to evaluate the adequacy of using videotaped instruction, particularly video modeling, in lieu of the more traditional and timely methods of patient education with the nurse. A randomized,

controlled study to investigate the efficacy of video modeling alone versus traditional patient education would help to substantiate the efficacy of innovative patient educational approaches, demonstrating an effective patient education approach that is also less expensive to administer than traditional patient instruction. Suggestions for further research include a third videotape-only group.

An instrument that measured knowledge of postoperative care for patients who had undergone nasal and/or sinus surgery was developed for this study. The reliability and validity of this instrument was reported. This instrument may be administered to patients with the same diagnoses, even though the patient population might reflect different demographic characteristics or settings. Over time, the validity and reliability of this instrument when used with a variety of populations and in different settings can be compared with the findings of this current study.

Studies that examine the utility of other forms of instructional materials to supplement or replace traditional written instruction, particularly in patients with impaired vision or difficulty reading, are greatly needed to further knowledge in this area. Although this study did not specifically examine differences between subjects in cognitive ability or sensory acuity (e.g. visual impairment), these variables may play a significant role in how individuals learn and warrant further investigation.

Health care continues to change, placing greater responsibilities on patients and their families for their own health care practices. Developing and evaluating creative instructional materials that facilitate acquisition of knowledge and skills is a challenge for nurses in the 21st century. Multimedia presentations and computer-based instructions are gaining in popularity for both practitioners and consumers. Through continued investigation with well-controlled studies, nurses

will develop the most effective, efficient, and economical means for facilitating ways that patients can positively contribute to their care and desired treatment outcomes.

Acknowledgements:

This project was supported in part through a grant from the American Nurses Foundation. Dr. Helene J. Krouse is a 1998 Southern Nursing Research Society/American Nurses Foundation Scholar.

Production of the patient videotape was supported in part through an educational grant from Smith + Nephew, Inc., ENT Division.

This study also received a Research Award from the Society of Otorhinolaryngology and Head-Neck Nurses.

Table 1: Sample Characteristics (n=52)

Characteristics	Experimental Group (n=28)			Control Group (n=24)		
	n	%	M(SD)	n	%	M(SD)
Age	-	-	54.2 (17.2)	-	-	53.5 (17.5)
Female Male	11 17	39.3 60.7	-	9 15	37.5 62.5	-
Prior Surgery	7	25	-	7	29.2	-
Smoker	4	14.3	-	5	20.8	-
Employed	18	64.3	-	14	58.3	-
Allergies	11	39.3	-	8	33.3	-

(back to text)

Table 2: Perceived Importance of Postoperative Care Measures

Treatment Method	Mean (SD)		Percent Subjects' Perceived Importance	
	Exp.	Control	Exp.	Control
Nasal irrigation	2.65(.69)	2.52(.67)	96%	100%
Saline sprays	2.50(.76)	2.35(.71)	100%	100%
Antibiotics	1.62(1.1)	1.87(1.1)	73%	83%
Nasal steroid sprays	1.58(1.3)	1.00(1.2)	69%	48%
Allergy Shots	1.50(1.3)	0.91(1.1)	65%	48%
Antihistamines	1.00(.98)	0.78(1.0)	65%	48%
Decongestants	0.73(.92)	0.61(.94)	50%	35%
Other over-the-counter	0.42(.58)	0.57(.84)	38%	39%

Note: No significant differences were noted between experimental and control groups.

(back to text)

Table 3: Means and Standard Deviations for Subscales of the RSDI

		Preoperative Scores M (SD)	Postoperative Scores M (SD)
RSDI Functional	Experimental	11.5 (7.2)	8.0 (6.9)
	Control	9.4 (6.7)	7.8 (5.6)
RSDI Emotional	Experimental	10.8 (6.8)	7.8 (7.4)
	Control	9.2 (6.2)	6.8 (6.6)
RSDI Physical	Experimental	16.1 (7.0)	11.1 (8.4)
	Control	14.1 (6.8)	12.8 (8.1)

(back to text)

Table 4: Mean Ratings of Surgical Site Preoperatively and Postoperatively for Experimental and Control Group

	Nasal Drainage			Nasal Edema			Nasal Crusting			Obstruction		
	Pre	1 wk	1 mo	Pre	1 wk	1 mo	Pre	1 wk	1 mo	Pre	1 wk	1 mo
Experimental	2.5	2.0	1.7*	2.3	1.7	1.4*	1.1	2.4	1.6*	2.6	1.8	1.3*
Control	2.2	2.1	1.7*	2.2	2.0	1.5*	1.3	2.6	1.5*	2.8	2.1	1.4*

Note: Time Effect $p < 0.0001$. No significant differences were noted between experimental and control groups.

(back to text)

Diagram 1: Data Collection and Intervention Points

	Knowledge Index	STFS	RSDI	Endoscopic Rating	Patient Education
Preoperative Visit	X		X	X	X
One Week Follow-Up	X	X		X	
One Month Follow-Up			X	X	

(back to text)