The Effect of Comfort Program on Satisfaction, Anxiety, and Pain among Patients Receiving Colonoscopy*

Truong Thi Thuy Huong[1], Wallada Chanruangvanich, RN, DNS[1],
Orapan Thosingha, RN, DNS[1]

Abstract

Purpose: To evaluate the effect of comfort program on satisfaction, anxiety, and pain among patients receiving colonoscopy.

Design: A quasi-experiment design.

Methods: The sample was 152 patients both males and females with the age of 18 years and older who received colonoscopy at the Functional Examination Department of Bach Mai Hospital, Hanoi, Vietnam. The sample was divided into control and experimental groups. The comfort program was provided to the experimental group, and the control group received routine care. Data were collected with 3 questionnaires: 1) Hamilton Anxiety Rating Scale, 2) Numerical Rating Scale, and 3) Group Health Association of America-9 survey. ANCOVA, Mann-Whitney U, and Chi-square test were used to analyze the data.

Main findings: There was significant difference of satisfaction and anxiety level between the control and experimental group after colonoscopy ($p < .05$). The majority of patients in the experimental group (75.9%) were satisfied with very good and 24.1% with excellent level. Pain levels increased to the mean score of 4.96 (SD = 2.02) in the experiment group and mean score of 6.41 (SD = 2.10) in the control group. However, there was no difference in pain perception between two groups.

Conclusion and recommendations: The comfort program shows an effectiveness to increase patients' satisfaction and reduce anxiety. Thus, nurses should sustain this program by training all nurses and health care personal to improve the quality of patient's care.

Keywords: anxiety, colonoscopy, comfort program, pain, satisfaction

Corresponding Author: Assistant Professor Wallada Chanruangvanich, Faculty of Nursing, Mahidol University, Bangkok 10700, Thailand, e-mail: wallada.cha@mahidol.ac.th

** Master thesis, Master of Nursing Science in Adult Nursing, Faculty of Nursing and Faculty of Graduate Studies, Mahidol University Bangkok, Thailand*

[1] Faculty of Nursing, Mahidol University, Bangkok, Thailand

ผลของโปรแกรมส่งเสริมความสุขสบายต่อความพึงพอใจ ความวิตกกังวล และความปวดของผู้ป่วยที่ได้รับการส่องกล้องตรวจลำไส้ใหญ่*

Truong Thi Thuy Huong[1] วัลย์ลดา ฉันท์เรืองวณิชย์, พย.ด.[1] อรพรรณ โตสิงห์, พย.ด.[1]

บทคัดย่อ

วัตถุประสงค์: เพื่อประเมินผลโปรแกรมส่งเสริมความสุขสบายต่อความพึงพอใจ ความวิตกกังวล และความปวดของผู้ป่วยที่ได้รับการส่องกล้องตรวจลำไส้ใหญ่

รูปแบบการวิจัย: วิจัยกึ่งทดลอง

วิธีดำเนินการวิจัย: กลุ่มตัวอย่างเป็นผู้ป่วยทั้งชายและหญิงอายุตั้งแต่ 18 ปีขึ้นไป รวม 152 คน ที่มารับการส่องกล้องตรวจลำไส้ใหญ่แบบไม่ได้ดมยาสลบ โรงพยาบาลแบคมาย เมืองฮานอย ประเทศเวียดนาม ผู้ป่วยถูกแบ่งเท่าๆ กันเป็นกลุ่มควบคุมและกลุ่มทดลอง กลุ่มทดลองได้รับโปรแกรมส่งเสริมความสุขสบาย กลุ่มควบคุมได้รับการดูแลตามปกติ เก็บข้อมูลจากแฟ้มผู้ป่วยและใช้แบบสอบถามวัดความวิตกกังวลของ Hamilton Anxiety Rating Scale วัดความปวดด้วย Numerical Rating Scale และความพึงพอใจด้วย Group Health Association of America-9 survey วิเคราะห์ข้อมูลด้วยสถิติ ANCOVA Mann-Whitney U test และไคสแควร์

ผลการศึกษา: ผู้ป่วยกลุ่มทดลองมีความพึงพอใจและความวิตกกังวลภายหลังได้รับการส่องกล้องตรวจลำไส้ใหญ่แตกต่างจากกลุ่มควบคุมอย่างมีนัยสำคัญทางสถิติ ($p < .05$) ความพึงพอใจในบริการส่วนใหญ่อยู่ในระดับดีมากถึงดีเยี่ยม (ร้อยละ 75.9 และ 24.1) กลุ่มทดลองมีค่าเฉลี่ยของระดับความปวดเพิ่มขึ้นเป็น 4.96 (SD = 2.02) ขณะที่กลุ่มควบคุมมีค่าเฉลี่ย 6.41 (SD = 2.10) แต่แตกต่างกันไม่มีนัยสำคัญทางสถิติ

สรุปและข้อเสนอแนะ: โปรแกรมส่งเสริมความสุขสบายมีประสิทธิภาพที่จะช่วยเพิ่มความพึงพอใจและลดความวิตกกังวลแก่ผู้ป่วย พยาบาลจึงควรนำโปรแกรมนี้มาใช้อย่างต่อเนื่องเพื่อเพิ่มคุณภาพการดูแล โดยเริ่มจากการจัดอบรมให้แก่พยาบาลและบุคลากรทุกคน

คำสำคัญ: การส่องกล้องตรวจลำไส้ใหญ่ ความปวด ความพึงพอใจ ความวิตกกังวล โปรแกรมส่งเสริมความสุขสบาย

J Nurs Sci. 2017;35 Suppl 1:71-78

Corresponding Author: ผู้ช่วยศาสตราจารย์วัลย์ลดา ฉันท์เรืองวณิชย์, คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล บางกอกน้อย กรุงเทพฯ 10700, e-mail: wallada.cha@mahidol.ac.th

** วิทยานิพนธ์หลักสูตรพยาบาลศาสตรมหาบัณฑิต สาขาการพยาบาลผู้ใหญ่ คณะพยาบาลศาสตร์ และบัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล*

[1] คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล

Background and Significance

Colonoscopy is an investigation endoscopic procedure widely performed to screen or diagnose colorectal cancer and inflammatory bowel syndrome.[1,2] During colonoscopy, patients could receive further investigation and treatment such as biopsy or lesion removal.[3] Although, colonoscopy is a significant procedure that benefits in screening and early diagnosis for colorectal cancer, patients undergoing this procedure always experience unpleasant feeling such as pain, abdominal discomfort, or distension before and during the procedure.[4]

Bach Mai Hospital is a leading health center of Vietnam Northern region. There are approximately 50 cases for colonoscopy each day, in which 60% receive sedation and 40% without sedation. Each method depends on the payment or insurance coverage of patients. Patients with non-sedation colonoscopy usually experienced negative feelings such as abdominal discomfort, pain, and anxiety that made them fear of the procedure and expressed dissatisfaction with the service of the hospital.[5,6] Among the non-sedation colonoscopy group, 34% of these patients felt painful and women more than men experienced moderate or severe pain.[7] In order to better satisfy the non-sedation colonoscopy patients, nursing intervention should be focused on promoting comfort, preventing pain, and enhancing patients' confidence.[8,9]

According to the Kolcaba theory[10], comfort refers to obtain satisfaction through the achievement of human needs, relief from unpleasant feeling, and feeling transcendence because of recovering from the very stressful health situation. Initiating comfort program focusing on patients' satisfaction will assure the patients of quality of care especially to relief pain and anxiety.[10]

Abdominal pain and anxiety are common problems associated with the colonoscopy procedure.[1,4] If the patient's pain is not well managed, many adverse effects could occur. Effects from pain are multi-faceted and composed of physical changes, psychological alteration, emotional instability, fear, anxiety, and behavioral changes.[11] During the procedure, patients might not only be suffering pain, but they also might have anxiety because they feel insecure and lack of appropriate information.[12]

Pain, discomfort, anxiety, and unpleasant feelings during the colonoscopy procedure led to patient's dissatisfaction. So, there were many programs with cognitive and behavioral education or using music during procedure to reduce those problems.[12,13] Previous studies demonstrated favorable outcomes including decreased anxiety and pain levels, as well as increased feelings of security and satisfaction.[14] Providing patients with information showed its effectiveness because patients clearly understood the purposes and the steps of the procedures.[12,14] Accordingly, the bowel condition was ready for colonoscopy and the patients did not need repeated bowel irrigation that lead to longer waiting time.[15]

Therefore, the researcher would like to develop a comfort program composed of cognitive and behavioral education and pain control in a supportive environment in order to achieve satisfaction and also reduce pain and anxiety of the non-sedation colonoscopy patients in Bach Mai Hospital.

Objective

To evaluate the effectiveness of comfort programs on satisfaction, anxiety, and pain among patients receiving non-sedation colonoscopy.

Hypothesis

1. After the intervention, satisfaction of patients receiving comfort program was higher than those in the control group.
2. After the intervention, anxiety and pain of patients receiving comfort program were lower than those in the control group.

Methodology

A quasi-experiment design was used.

Population and Sample

Population was out-patients who received non-sedation colonoscopy at the Functional Examination Department of Bach Mai Hospital, Hanoi, Vietnam. The criteria for inclusion were as follows: 1) age 18 years and older, 2) able to communicate in Vietnamese. Exclusion criteria were 1) patients who were intolerant with colonoscopy while receiving the procedure, 2) patients who had symptoms or complications such as unstable vital signs; for instance, blood pressure (BP) over 160/90 mmHg or under 90/60 mmHg, bleeding or perforation during colonoscopy.

Sample size was calculated by using G*power program to determine the minimum number of participants needed for Quasi-experiment design.[16] Based on the study of Katseesung et al.[17], in 2015 involved preparing bowel and bowel quality in colonoscopy patients; three parameters are required including 1) $\alpha = .05$, 2) power of test ($1-\beta = .90$) effect size = .48 from the control group (Mean = 6, SD = 2.24) and the experiment group (Mean = 6.88, SD = 1.31). So, the sample size was at least 152 total subjects. The final sample each group consisted of 76 participants.

Research Instruments

1. The comfort program

The comfort program was designed for providing information, reducing anxiety, improving environment, and reducing pain with the following details: 1) Providing information guidelines included information for bowel preparation and colonoscopy process by using posters of stool color and leaflets with short, diagrammatic form which was easy to understand for patients. These posters and leaflets were distributed to patients directly, hung on waiting room wall and placed on the toilet wall; 2) Reducing anxiety was achieved by various activities for example explaining to patients the important steps in pre-and post-colonoscopy and listening to music; 3) Improving the environment was planned to make changes by providing a clean, fresh, warm, safe and friendly environment in area of colonoscopy room, waiting room, reception room and toilet; 4) Reducing pain was obtained by repositioning and breathing guiding the patient during colonoscopy; fentanyl 0.1 mg in 2 ml. injection was provided to patients under doctor's indication and guiding patients to reduce gases in abdominal after colonoscopy.[8]

The control group had colonoscopy performed as per routine hospital procedure including: 1) Nurses helped patients to register and wait for examination; 2) Nurses verbally guided them how to prepare bowel; 3) Nurses explained how the procedure was performed and advised of possible complications and encouraged patients as a way to prevent anxiety; 4) Nurses assisted the doctor with the procedure. During the process, nurses guided the patients for positioning, direction, and breathing; 5) Nurses helped patients in the recovery room.

2. Instruments for data collection

1) The demographic data including age, gender, occupation, educational level, illness history, and previous treatment information.

2) The Hamilton Anxiety Rating Scale (HARS)[18], was used to measure anxiety of the patients; HARS composed of 14 items with each item scored on the rating scales valued from 0 = "not present" to 4 = "severe". The total possible score ranged from 0-56. Scores < 17 indicated mild severity; 18-24 indicated mild to moderate severity; 25-30 indicated moderate to severe severity; and > 30 indicated severe severity of anxiety.[18]

3) The Numerical Rating Scale (NRS) was used to measure level of pain. This pain scale was developed by McCaffery.[19] NRS reflects severity of pain from 0 to 10 in a horizontal line. Subjects were asked to verbally rate their pain on this scale with "0" equal to no pain and "10" equal to worst possible pain. The values on the pain scale correspond to pain levels as follows: 1-3 = mild pain, 4-6 =

moderate pain, 7-10 = severe pain.

4) The modified GHAA-9 questionnaire (Group Health Association of America-9 survey)[20], was used to assess patient satisfaction. There were seven core items of the modified GHAA-9 survey[21] and researcher added three questions to adapt from literature reviews in this instruments. All 10 items were scored on a 5-value Likert scale, with 1 representing "poor" and 5 representing an "excellent" satisfaction rating. The maximum possible satisfaction score is 50. Higher score indicated higher satisfaction.

All questionnaires were translated into Vietnamese language by an English teacher using back translation technique. The content validity was reviewed and approved by 5 experts. Reliability of all Vietnamese versions with 30 patients showed good reliability with Cronbach' alpha was .82 for HARS and .79 for GHAA-9.

Protection Right of Human Subjects

This project was approved by the Institutional Review Board (IRB) of Faculty of Nursing, Mahidol University, Thailand (COA No.IRB-NS 2016/366.0807) and IRB of Vietnam National University, Vietnam. The researcher recruited subjects as standard process specified by the IRB. The issues of independently to make decision to consent, anonymity, and confidentiality were warranted.

Data Collection Process

The data collection was conducted in the following sequences:

1. After getting permission to collect data from the director of the hospital, the researcher met the director of Bach Mai Hospital, the head of Functional Examination Department, nurses, and doctors to explain the research project and asked for cooperation.

2. The research assistant self-introduced to the potential subjects, explained the objective of study, data collection procedure, and invited to join the study. Subjects who consent to participate were asked to sign the consent form. Then, the researcher started to collect demographic data from medical records.

3. For the control group, the researcher collected data with 2 questionnaires before they received colonoscopy with routine care: the Hamilton Anxiety Rating Scale (HARS) and the Numerical Rating Scale (NRS). After the colonoscopy finished, the researcher collected data with 3 questionnaires: the Hamilton Anxiety Rating Scale (HARS), the Numerical Rating Scale (NRS), and the Modified GHAA- 9 Questionnaire.

4. For the experimental group, the researcher collected data with 2 questionnaires: the Hamilton Anxiety Rating Scale (HARS) and the Numerical Rating Scale (NRS). Then, the comfort program was provided followed by colonoscopy. After the colonoscopy finished, the researcher collected data with 3 questionnaires: the Hamilton Anxiety Rating Scale (HARS), the Numerical Rating Scale (NRS), and the Modified GHAA- 9 Questionnaire.

Data Analysis

Data were analyzed using the computer statistical package with the significant level of .05 as follows:

1. The descriptive statistics: frequency, percentage, mean, range, and standard deviation were used to describe general characteristics of the samples and studied variables including satisfaction, pain, and anxiety of patients received colonoscopy.

2. ANCOVA for anxiety; Mann-Whitney U test for non-normal distribution of pain and satisfaction; and Chi-square tests were used to compare the difference between two groups.

Findings

General characteristics

The findings revealed that 49.1% of subjects were males and 51.9% were females. The mean age of the subjects was 60.9 years (SD = 7.5 years), almost of them were married (91.3%) and 58.2% finished junior education level.

Effects of comfort program on anxiety, pain, and satisfaction of the subjects

The findings partially supported the proposed hypotheses: there was significant difference in the anxiety level between those in the experimental and in the control group ($p < .05$). However, there was no difference in pain score between those in the experimental and in the control group ($p > .05$). In addition, there was significant difference in the satisfaction after colonoscopy between those in the experimental and in the control group ($p < .05$). (Table 1)

Table 1: Mean and standard deviation of anxiety, pain, and satisfaction of the subjects

Variables	Control group		Experimental group		p-value
	Pre	Post	Pre	Post	
Anxiety*	28.91 (5.85)	30.53 (6.71)	18.27 (4.22)	8.82 (4.61)	< .05
Pain**	5.91 (2.11)	6.41 (2.09)	4.37 (1.90)	4.96 (2.01)	> .05
Satisfaction**	-	22.96 (2.26)	-	38.48 (2.28)	< .05

* ANCOVA, ** Mann-Whitney U test

Discussion

Hypothesis 1: After the intervention, satisfaction of patients receiving comfort program was higher than those in the control group.

The results supported hypothesis 1 that the experiment group had a significant higher score of satisfaction with colonoscopy than control group ($p < .05$). Some domains such as doctors' and nurses' manner toward the patients, adequate explanation, receiving appropriate information, and environment of the department were prominent. With regard to the environment, the patients in experimental group reported that waiting room, examination room, and toilet were very clean, comfortable and convenience. The comfort program focuses in 4 dimensions of comfort; physical, psycho-spiritual, socio-cultural, and environmental comfort. Therefore, the patients in this study mostly seemed to return for investigation and treatments that are congruence with the studies of the patients' satisfaction[9,22] as proposed by Azmi, Chan and Goh who found that waiting time for appointments and on gastroscopy day and discomfort during procedure comprise of over 90% of unfavorable responses. Satisfactory response diminished to undesirable level when waiting time for appointment exceeded 1 month and on gastroscopy day exceeded 1 hour, respectively.[22] Accordingly, satisfaction scores were lower for inappropriate personal manners of nurses/staff and inadequate explanation.[23]

After experiencing a colonoscopy procedure, most of patients in control group (61.02%) were "not willing to come back", whereas, in experimental group, most of patients (60.76%) stated that they would "probably come back" and 29.11% of patients would "certainly come back" or were willing to recommend our hospital to the others. This result is similar to the studies of Triantafyllou et al.[23], and Sewitch et al.[9] In conclusion, patient who had more satisfaction would come back to the hospitals and recommend the services to the others.

Hypothesis 2: After the intervention, anxiety and pain of patients receiving comfort program were lower than those in the control group.

Our findings showed that there was no difference in the pain score between the control and intervention groups before and after procedure which was not supported hypothesis 2. The cause of this condition might be due to the protocol of pain control. Some doctors did not give a fentanyl or any pain control medication in either the experimental or control groups. Pain level in this study (Mean = 4.96) was more than the results of Arabulm et al.[12],

(Mean = 2.99) but similar to Holme's results[7], the colonoscopy were perceived as painful by 34% of the patients with moderate or severe pain. Moreover, other studies found that patients who reported more anxiety had significantly higher levels of abdominal pain after the procedure ($p < .01$) and still recalled more pain from the procedure after one week.[24] Thus, nurses should assess pain levels and distract patients from pain using music, repositioning and breathing guiding during colonoscopy. After colonoscopy, the pain control medicine should be applied according to the patients' need.

Patients undergoing a colonoscopy might experience anxiety prior to the procedure. Whilst the anxiety may be short lived, this may result in a feeling of increased discomfort during and after the procedure.[24] There was a statistically significant difference of anxiety score in patients between the control and experimental groups in two periods, before and after undergoing colonoscopy ($p < .05$). The anxiety was indifferent, with minor increases after colonoscopy in the control group (28.91, 30.53, $p < .05$). In contrast, in the experimental group, anxiety score declined 10 points after the intervention (18.27, 8.82, $p < .05$). The reasons for diminishing the anxiety in experimental group before and after undergoing a colonoscopy were that patients received a guide from nurses about colonoscopy before undergoing the procedure. Likewise, they were put in a more comfortable environment with a large waiting room, listening to music while waiting, and a clean toilet. This result coincides with many researcher who used methods of guiding patients before colonoscopy to reduce patient's anxiety and to improve quality of colonoscopy produce.[8,13] As the study of Arabulm et al., found, providing information with verbal communication or video were accepted by patients as successful to understand the colonoscopy procedure.[12]

Conclusion and Implications

After applying the comfort program, patients had more satisfaction and less anxiety. If the medical staff understand and apply the comfort program, they will be able to increase satisfaction of patients who receive colonoscopy. Consequently, nurses should sustain this program by training all nurses and health care personnel to promote communication, provide a comfortable environment as well as developing guidelines with standing order prescriptions pain medication. These will assist patients' physical comfort, psycho-spiritual comfort, socio-cultural comfort, and environmental comfort, which can improve quality of patient care in the Hospital.

References

1. Ko CW, Dominitz JA. Complications of colonoscopy: magnitude and management. Gastrointest Endosc Clin N Am. 2010;20(4):659-71.
2. Friedman S, Cheifetz AS, Farraye FA, Banks PA, Makrauer FL, Burakoff R, et al. Factors that affect adherence to surveillance colonoscopy in patients with inflammatory bowel disease. Inflamm Bowel Dis. 2013;19(3):534-9.
3. Ferlay J, Autier P, Boniol M, Heanue M, Colombet M, Boyle P. Estimates of the cancer incidence and mortality in Europe in 2006. Ann Oncol. 2007;18(3):581-92.
4. Rastogi A, Wani S. Colonoscopy. Gastrointest Endosc. 2017;85(1):59-66.
5. Functional Examination Department, Bach Mai Hospital. Annual report of functional examination department 2014. Hanoi: Bach Mai Hospital; 2014.
6. Trevisani L, Zelante A, Sartori S. Colonoscopy, pain and fears: is it an indissoluble trinomial? World J Gastrointest Endosc. 2014;6(6):227-33.

7. Holme O, Bretthauer M, de Lange T, Seip B, Huppertz-Hauss G, Hoie O, et al. Risk stratification to predict pain during unsedated colonoscopy: results of a multicenter cohort study. Endoscopy. 2013;45(9):691-6.
8. Macintyre PE, Walker SM. The scientific evidence for acute pain treatment. Curr Opin Anesthesiol. 2010;23(5):623-8.
9. Sewitch MJ, Gong S, Dube C, Barkun A, Hilsden R, Armstrong D. A literature review of quality in lower gastrointestinal endoscopy from the patient perspective. Can J Gastroenterol. 2011;25(12):681-5.
10. Kolcaba K. Evolution of the mid range theory of comfort for outcomes research. Nurs Outlook. 2001;49(2):86-92.
11. Mertin S, Sawatzky JA, Diehl-Jones WL, Lee TW. Roadblock to recovery: the surgical stress response. Dynamics. 2007;18(1):14-20.
12. Arabulm M, Kandemir A, Çelik M, Alper E, Akpinar Z, Aslan F, et al. Impact of an information video before colonoscopy on patient satisfaction and anxiety. Turk J Gastroenterol. 2012;23(5):523-9.
13. Bechtold ML, Puli SR, Othman MO, Bartalos CR, Marshall JB, Roy PK. Effect of music on patients undergoing colonoscopy: a meta-analysis of randomized controlled trials. Dig Dis Sci. 2009;54(1):19-24.
14. Serper M, Gawron AJ, Smith SG, Pandit AA, Dahlke AR, Bojarski EA, et al. Patient factors that affect quality of colonoscopy preparation. Clin Gastroenterol Hepatol. 2014;12(3):451-7.
15. Sidhu S, Geraghty J, Karpha I, Wark L, Logan C, Sarkar S. Outcomes following an initial unsuccessful colonoscopy: a 5-year complete audit of teaching hospital colonoscopy practice. Gut. 2011;60 Suppl 1:A201.
16. Faul F, Erdfelder E, Buchner A, Lang AG. Statistical power analyses using G*Power 3.1: tests for correlation and regression analyses. Behav Res Methods. 2009;41(4):1149-60.
17. Katseesung P, Asdornwised U, Pinyopasakul W, Akaraviputh T. Effects of continuing care program on quality of bowel preparation and anxiety in who receiving ambulatory colonoscopy. Journal of Nursing Science. 2015;33(3):61-73.
18. Hamilton M. The assessment of anxiety states by rating. Br J Med Psychol. 1959;32(1):50-5.
19. McCaffery M, Beebe A. Pain: clinical manual for nursing practice. St. Louis, MO: Mosby; 1989. p.24-95.
20. [No authors listed]. Quality and outcomes assessment in gastrointestinal endoscopy. American Society for Gastrointestinal Endoscopy. Gastrointest Endosc. 2000;52(6):827-30.
21. Harewood GC, Wiersema MJ, de Groen PC. Utility of Web-based assessment of patient satisfaction with endoscopy. Am J Gastroenterol. 2003;98(5):1016-21.
22. Azmi N, Chan WK, Goh KL. Evaluation of patient satisfaction of an outpatient gastroscopy service in an Asian tertiary care hospital. BMC Gastroenterology. 2012;28(12):96. doi: 10.1186/1471-230X-12-96.
23. Triantafyllou K, Gkolfakis P, Triantafyllou M, Ndini X, Melissaratou A, Moustafa GA, et al. Long-term patient satisfaction of gastrointestinal endoscopic procedures. Ann Gastroenterol. 2016;29(2):188-95.
24. Carter XW, Topolski R, Hatzigeorgiou C, Fincher RK. Role of anxiety in the comfort of nonsedated average-risk screening sigmoidoscopy. South Med J. 2013;106(4):280-4.