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Impact of Video-Assisted Strategic Instruction on Knowledge, Anxiety and Compliance in Patients Undergoing Colonoscopy: A Pre- and Post-Intervention Study

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Abstract **Background:** Patients undergoing colonoscopy procedure are non-compliance to adherence of procedure leads to poor diagnosis and treatment. **Aim:** The study's aimed to evaluate the effects of video-assisted strategic instruction among patients undergoing colonoscopy at a tertiary care hospital. **Methods:** One-group pretest and posttest research design was adopted for this study. Using non- probability purposive sampling technique, the sixty samples in total were recruited that satisfied the inclusion criteria. The video-assisted strategic instruction was carried out at the Endoscopy department on the day of confirmation of appointment for colonoscopy procedure. The knowledge, anxiety and compliance were assessed on the day of colonoscopy procedure before and after the intervention. **Results:** The study findings revealed a marked increase in knowledge and a significant decrease in anxiety among patients undergoing colonoscopy after receiving video-assisted strategic teaching. The average knowledge score rose from 1.68±0.833 at baseline to 7.50±1.359 following the intervention, whereas the average anxiety score declined from 4.12±1.342 to 3.70±1.212 ($p<0.001$), demonstrating the positive impact of the teaching program. **Conclusion:** An independent nursing intervention, such as video-assisted strategic instruction, can efficiently increases knowledge, decreases anxiety and improves the compliance among the patients undergoing colonoscopy procedures.

Key Words Colonoscopy, Patient Education, Knowledge, Anxiety, Compliance, Video-Assisted Instruction

INTRODUCTION

The gastrointestinal (GI) disease accounts for many deaths in several parts of the world. Globally 1.9 million new cases were identified and among 0.94 million deaths were occurred. By 2040, 3.2 million cases will be identified and among 1.6 million deaths will be estimated per year [1]. Both Western and Asian populations have increasing risk of CRC as they reach older ages [2]. World cancer research fund reports that there were 1.8 million new cases of colorectal cancer (CRC) and it was the third most common cancer, in 2018. In which 1,006,019 (11.4%) new cases were identified in men and 794,958 (9.7%) new cases were identified in women [3]. American Cancer Society (2024) reports that fourth leading cause of death among younger age (<55yers) is due to colorectal cancer and increasing the incidence by 1-2% annually in both men and women [4-6]. Overall, there was a rise in colon cancer trends in China, the US and India between 2018 and 2027 [7].

CRC screening has significantly contributed to the alleviation of its disease burden. The prevalence and burden of GI diseases mandate appropriate screening measures and diagnostic modalities to prevent and manage the diseases effectively. Cancer that is limited to the mucosa or submucosa and does not spread to the muscularis propria is referred to as early-stage colorectal cancer [8-12].

People at the age of 50 to 75 should be screened for CRC and colonoscopy should be done once in every 10 years. However, a patient may refuse to have a colonoscopy due to a lack of knowledge or a fear of pain, which could have negative effects on both the diagnosis and course of therapy. The inadequate information will lead to inadequate bowel preparation and poor compliance and which further affects the diagnosis process and may require repetition of procedure [13-16]. Provision of information with the help of the technology such as video assisted teaching helped to reduces the fear among the patients and they expressed

readiness to undergo the procedure. In patients having screening colonoscopies, a patient-centered instructional video enhances the quality of bowel preparation and may reduce the need for an earlier repetition of procedure [17].

Preparing a patient for an invasive procedure is an important responsibility to the health professionals [7]. Enhanced instructions provided to the patients before the colonoscopy procedure considerably increased the quality of bowel preparation and willingness among patients undergoing colonoscopy, according to the recent meta-analysis of randomized controlled studies.

Hence, the researcher has decided to carry out the study to evaluate the video-assisted strategic instruction on knowledge, preprocedural anxiety and compliance among patients undergoing to colonoscopy procedure [18-21].

Aim of the Study

The study aimed to assess the effects of video-assisted strategic instruction on knowledge, anxiety and compliance among patients undergoing to colonoscopy.

METHODS

Study Design and Participants

The one group pre and post-test research design adopted for this study. The patients subjected to colonoscopy procedure with confirmation of appointment and undergoes the procedure at the endoscopy department of a tertiary care hospital. The minimum sample size needed for the study is 60 and the sample size is determined using a comparable study with 80% power and 5% error. The non-probability purposive sampling technique was adopted. The inclusion criteria were such as patients subjected to colonoscopy with confirmation of appointment, both genders, aged between 21 and 70 years, who were undergoing colonoscopy procedure for the first time. Patients who were critically ill and who were subjected to colonoscopy as an emergency were the exclusion criteria.

Data Collection Tools

A self-reported questionnaire was used to collect demographic and clinical data. The assessment of anxiety was carried out on a 10-point numerical rating scale. Anxiety was assessed using a Numerical Rating Scale (reliability r = 0.88) and compliance was assessed using a 9-item five-point Likert scale (Cronbach's $\alpha = 0.79$). The instruments were validated by experts in nursing and gastroenterology.

Data Collection Procedure

Written informed consent was obtained from all participants before data collection. Sixty patients were recruited through purposive sampling and underwent baseline assessment of demographic characteristics, knowledge and anxiety. Subsequently, each participant received an individual video-assisted teaching session on colonoscopy and an educational pamphlet. Follow-up assessment of knowledge and anxiety was carried out on the day of the procedure, while compliance was evaluated before, during and after colonoscopy. All data were collected by the investigator and complete responses were obtained from all participants.

Ethical Considerations

Institutional Review and Ethics Committee reviewed and approved the study. The study purpose was clarified clearly to the participants. Before conducting the study, a written informed consent was obtained from all the participants. All study participants received assurances that their privacy would be protected during the investigation.

Data Analysis

The data analysis plan was established in collaboration with the biostatistician. The gathered data were scrutinized using both description statistics (frequency, percentage, mean and standard deviation) and inferential statistics (paired‘t’ test and Chi square). There were no missing data in the statistical analysis and the results were presented with narrative descriptions and summarized using the tables.

RESULTS

The data regarding background variables of the patients, 83.3% were male and 40.0% of the participants were between the ages of 31 and 40. According to the patients' educational records, 45% of them had completed school and regarding occupation 46.7% of them were business people. Regarding type of family, 68.3% of the patients belonged to nuclear family. The data regarding place of residence showed that 70% of them were from urban area (Table 1).

The data on indication for colonoscopy as 26.7% had complaints of constipation, 28.3 % had complaints of bleeding per rectum, 20.0% had complaints of diarrhea, 11.7 had complaints of anemia and 13.3% had complaints of abdomen pain. About co-morbid illness, 73.3% of the patients did not have any co-morbid illness. The data on alcohol consumption and smoking habits reveal that 76.7% and 80% of them, respectively, did not have these habits. With respect to family history of gastric problem, 96.7% of the patients did not have family history of gastric problem (Table 2).

Knowledge and Anxiety

According to the results, 3.3% of patients had a moderate level of knowledge during the pretest, whereas 96.7% of patients had an inadequate level. Of them, 23.3% had a moderate level of knowledge and 76.7% had an adequate level during the posttest.

With related to anxiety, the findings reveal that during pretest, 41.7% of the patients had mild level of anxiety, 53.3% of them had moderate level of anxiety and 5% had severe level of anxiety. During posttest, 50% of the patients had mild level of anxiety, 48.3% of them had moderate level of anxiety and 1.7% had severe level of anxiety.

The second goal of the study was to assess the compliance after video-assisted strategic instruction among patients subjected to colonoscopy. The study Finding reveals that during posttest, 21.7% of the patients showed moderate level of compliance and 78.3% of them showed good level of compliance. The mean score of the compliance was 26.57 with the standard deviation of 3.12 (Table 3).

Table 1: Distribution of the Patients Subjected to Colonoscopy According to Their Demographic Variables

Demographic Variables	N	Percentage
Age (Years)		
21-30	07	11.7
31-40	24	40.0
41-50	19	31.6
51-60	7	11.7
61-70	3	05.0
Gender		
Male	50	83.3
Female	10	16.7
Education		
No formal education	3	5.0
Primary	12	20.0
Higher secondary	27	45.0
Graduate	18	30.0
Occupation		
Daily wages	8	13.3
Business	28	46.7
Professional	14	23.3
Home maker	10	16.7
Marital Status		
Single	5	8.3
Married	54	90.0
Widow/divorce	1	1.7
Type of Family		
Joint	19	31.7
Nuclear	41	68.3
Place of Residence		
Urban	42	70.0
Rural	18	30.0
Monthly Income(in Rupees)		
<10,000	3	5.0
10,000-20,000	29	48.3
>20,000	28	46.7

Table 2: Distribution of the Patients Subjected to Colonoscopy According to Their Clinical Variables

Clinical variables	n	Percentage
Indication for Colonoscopy		
Constipation	16	26.7
Bleeding per rectum	17	28.3
Diarrhoea	12	20.0
Anemia	7	11.7
Abdomen pain	8	13.3
Comorbid Illness		
Hypertension	3	5.0
Diabetes mellitus	11	18.3
Cardiac diseases	1	1.7
Respiratory diseases	1	1.7
Nil	44	73.3

Table 3: Comparison of Knowledge Before and After Video-Assisted Strategic Teaching Among Patients Subjected to Colonoscopy

			Difference			
Knowledge	Mean	SD	Mean	SD	Paired t-value	p-value
Pretest	1.68	0.833	-5.817	1.049	-42.931***	0.000
Posttest	7.50	1.359				

***p<0.05

Table 4: Comparison of Anxiety Before and After Video-Assisted Strategic Teaching Among Patients Subjected to Colonoscopy

			Difference			
Anxiety	Mean	SD	Mean	SD	Paired t-value	p-value
Pretest	4.12	1.342	0.417	0.591	5.464***	0.000
Posttest	3.70	1.212				

***p<0.05

The mean knowledge scores of the patients undergoing colonoscopy before and after video-assisted strategic instruction showed a statistically significant change (p<0.05) (Table 3). The mean anxiety scores of the patients undergoing colonoscopy before and after video-assisted strategic instruction showed a statistically significant change (p<0.05). During posttest, the mean score of the compliance was 26.57 with standard deviation of 3.12 (Table 4).

DISCUSSION

The present study found that video-assisted strategic teaching significantly improved the knowledge of patients undergoing colonoscopy. The marked increase in posttest knowledge scores indicates that the intervention was effective in enhancing patients' understanding of the procedure. These findings are consistent with previous studies that reported improved patient knowledge following educational interventions [19-21].

The study also demonstrated a significant reduction in anxiety levels after the intervention. Adequate information regarding the procedure may help patients feel more prepared and confident, thereby reducing anxiety. Hence, the hypothesis stating that video-assisted strategic teaching would improve knowledge and reduce anxiety among patients undergoing colonoscopy was supported [22].

Most participants showed good compliance with colonoscopy-related instructions following the intervention. The use of visual and structured educational materials may have enhanced understanding and recall, leading to better adherence. Similar findings have been reported in studies that identified video-assisted education as an effective strategy for improving bowel preparation, patient satisfaction and procedural outcomes among individuals undergoing colonoscopy [23].

The effectiveness of video-assisted strategic teaching may be attributed to its ability to provide clear and comprehensive information in an easily understandable format. Improved knowledge can reduce uncertainty and fear associated with the procedure, thereby promoting positive behavioral responses. These findings are supported by previous research demonstrating that educational videos enhance bowel preparation quality and reduce the need for repeat colonoscopies [24].

The study further revealed that patients with no family history of gastric problems tended to have lower levels of knowledge. In addition, higher compliance levels were observed among educated participants, whereas poor compliance was more common among those with no formal education. These findings suggest that previous exposure to health information and educational status play an important role in influencing patient awareness and adherence to healthcare recommendations. Similar observations have been reported in earlier studies evaluating educational interventions among colonoscopy patients [25].

Strength and Limitations

This study has evaluated effects of video assisted strategic instruction on knowledge, anxiety and compliance among patients undergoing to colonoscopy. Samples recruitment was successful and none of the patients resisted to participate in the study and also there were no missing information. This study had insisted the needs of prior instruction before colonoscopy procedure and thus subsequently reduces anxiety and thereby it improves compliance among patients throughout the procedure. The use of non-probability sampling techniques and one-group pre-test and post-test designs may limit the generalizability of study results.

CONCLUSIONS

The study concluded that video-assisted strategic instruction is an essential intervention to increase knowledge about colonoscopy procedure, reduce anxiety level and improve compliance among patients subjected to colonoscopy. The decreased anxiety and improved compliance will lead to good patient outcomes during the colonoscopy procedure.

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