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WJGS mainly publishes articles reporting research results and findings obtained in the field of gastrointestinal surgery and covering a wide range of topics including biliary tract surgical procedures, biliopancreatic diversion, colectomy, esophagectomy, esophagostomy, pancreas transplantation, and pancreatectomy, *etc.*

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Observational Study

Effect of comprehensive management combined with cognitive intervention on patient cooperation and complications during digestive endoscopy

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Abstract

BACKGROUND

As lifestyles continue to change worldwide, the incidence of digestive tract carcinoma has gradually increased. Digestive endoscopy is an important tool that can assist in the diagnosis, treatment, and surgical intervention for this disease. However, the examination process is affected by many factors, and patient cooperation is often poor, which can increase the risk of complications.

AIM

To explore the effects of integrated management and cognitive intervention on cooperation and complications in patients undergoing endoscopy for early gastrointestinal neoplasms.

METHODS

A total of 354 patients with early stage gastrointestinal cancer who underwent digestive endoscopy procedures between January and December 2023 at our hospital were divided into observation and control groups (177 patients in each group) in a randomized controlled blind trial. The control group received routine interventions, while the observation group received comprehensive integrated management combined with cognitive interventions. We compared the changes in adverse mood, discomfort, examination time, cooperation with the examination, and complications before and after the intervention between the two groups.

RESULTS

The self-rated anxiety and depression scale scores were lower in the observation group than in the control group ($P < 0.05$). The visual analog scale scores for discomfort during intubation and examination were also lower in the observation group than in the control group ($P < 0.05$). Furthermore, the examination time was shorter in the observation group than in the control group ($P < 0.05$), and the

degree of cooperation (94.35%) was higher in the observation group than in the control group (84.75%; $P < 0.05$). Lastly, the incidence rates of gastrointestinal adverse reactions (10.17% *vs* 20.34%), choking agitation (14.69% *vs* 24.86%), abdominal pain (8.47% *vs* 18.08%), and muscle tension (5.08% *vs* 14.12%) were all lower in the observation group than in the control group ($P < 0.05$).

CONCLUSION

Integrated management and cognitive intervention in early gastrointestinal neoplasm endoscopy alleviate mood, reduce discomfort, shorten examinations, improve cooperation, and reduce complications.

Key Words: Digestive endoscopy; Comprehensive integrated management; Cognitive intervention; Cooperation; Complications

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Core Tip: Patients with early gastrointestinal neoplasms who undergo endoscopy often lack knowledge and experience discomfort, which leads to negative emotions, reduced compliance, and adverse outcomes. Although integrated management and cognitive interventions have shown benefits, little is known about their combined use. This study aimed to analyze the effects of integrated management and cognitive intervention on cooperation and complications in patients undergoing endoscopy for early gastrointestinal neoplasms.

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INTRODUCTION

In clinical practice, digestive endoscopy is the preferred diagnostic and therapeutic tool for examining patients with suspected early stage gastrointestinal cancer. It is known for its favorable safety, ease of use, and minimal invasiveness. Consequently, it has been used extensively in clinical practice. Endoscopic examination not only detects early stage cancers but also assesses tumor staging by observing the morphology, size, and depth of a lesion's infiltration, thus facilitating the formulation of suitable treatment plans. Several minimally invasive treatments can be performed endoscopically including endoscopic submucosal dissection and mucosal resection. These treatments offer the benefits of minimal invasiveness, swift recovery, and organ integrity preservation, making them ideal for treating early stage gastrointestinal cancers[1]. However, as this approach is invasive, most patients scheduled to undergo it lack a correct understanding of digestive endoscopy. In addition, discomfort caused by the drugs and instruments used in the procedure can significantly increase inner anxiety, fear, and other negative emotions. This can, in turn, activate psychological stress responses that can negatively impact compliance with the examination process, as well as the results and efficacy of any endoscopic treatment. Therefore, it has become important in clinical nursing to alleviate the negative emotions of patients with early stage gastrointestinal cancers who undergo endoscopic examinations and reduce discomfort during the examination in a reasonable and scientific manner. Related studies have shown that cognitive interventions can improve patient awareness of the disease, enhance confidence in treatment, and facilitate treatments[2]. Comprehensive integrated management is a scientific, comprehensive, and overall nursing model that is important for improving the psychological state of patients and promoting health[3]. At present, cognitive interventions and comprehensive integrated management have shown unique advantages in terms of nursing processes for various clinical diseases. However, the effects of their use in patients with early stage gastrointestinal cancer undergoing endoscopic examinations have not yet been reported. We enrolled 354 patients with early stage gastrointestinal cancer who underwent digestive endoscopy at our hospital. The effects of comprehensive integrated management combined with cognitive intervention on cooperation and complications in these patients were analyzed to guide future nursing practices.

MATERIALS AND METHODS

Study subjects

A total of 354 patients with early stage gastrointestinal cancer who underwent digestive endoscopy at our hospital between January and December 2023 were divided into the control and observation groups using a random number table. The control group comprised 96 males and 81 females. The formula $n = 2 [(t_{\alpha/2} + t_{\beta}) S/\delta]^2$ of the experimental comparison study was used to estimate the sample size. Where N is the sample size, t is the statistic, S is the estimated standard deviation of the population, and δ is the difference between the two means. Bilateral $\alpha = 0.05$, $\beta = 0.1$, see table

$t_{\alpha/2} = 1.96$, $t_{\beta} = 1.282$; The maximum estimated S/δ value of the pre-survey for clinical indicators of patients was 1.479, the minimum sample size of each group was determined to be 46 cases, the sample size was expanded by 10%, and the final inclusion of 354 patients met the requirements. The patients in this study were between 25-64 years (median, 44.47 ± 11.73 years) of age, and their body mass indexes ranged between 21.53-26.62 kg/m² (median, 24.11 ± 1.42 kg/m²). In terms of educational level, 79 patients had a high school education or less, whereas 98 had a college degree or higher. We performed 74 colonoscopies and 103 gastroscopies in the control group and evaluated 125 patients with gastric cancer and 52 patients with colorectal cancer. The observation group consisted of 96 males and 81 females, between 22 and 63 years of age (median, 44.12 ± 11.58 years) and with body mass indexes between 21.76-26.34 kg/m² (median, 24.20 ± 1.37 kg/m²). In terms of education level, 73 patients had a high school education or less, and 104 had a college degree or higher. We performed 80 colonoscopies and 97 gastroscopies to evaluate 114 and 63 patients with gastric and colorectal cancers, respectively. The general characteristics of the two patient groups were not significantly different ($P > 0.05$). The inclusion criteria were: (1) Patients with indications for digestive endoscopy who were undergoing the procedure for the first time at our hospital; (2) Patients aged > 18 years; (3) Patients who had basic communication, writing, and reading abilities; and (4) Patients who were aware of the study's purpose and competently signed an informed consent form. The exclusion criteria were: (1) Patients with allergies to the drugs or materials used in the equipment for the procedure; (2) Patients with liver, heart, kidney, or other organ dysfunctions; (3) Patients with mental diseases, audiovisual dysfunctions, or language dysfunctions; (4) Patients with infectious or acute diseases; (5) Patients who had recently undergone major life changes; (6) Pregnant and lactating women; and (7) Patients who voluntarily terminated the procedure prematurely. This study was approved by the Medical Ethics Committee of our hospital.

Control group intervention

Before each examination, the nursing staff instructed the patients to fast for 12 hours and refrain from drinking water for 6 hours. They also explained the precautions, purpose, and process of the examination, and how they could comply with the requirements. Relevant background examinations were also performed and the patients' medical histories were collected.

Observation group intervention method

One day before the examination, to improve each patient's understanding of the procedure, the nursing staff thoroughly explained the equipment to be used, items involved in the preparation steps, examination process, items involved in the examination itself, potential adverse reactions, standard post-examination observations, and other relevant information. This was performed using tools such as animations and video recordings of prior procedures. The nurses also guided each patient through a process to simulate expected compliance during the procedure. After each patient was observed, they were provided a brochure to read and review the materials during their leisure time. At the conclusion of each session, nurses asked the patients simple questions to assess their knowledge of the procedure, reviewed the correct answers, and ensured that they comprehensively understood the major aspects of the procedure. Communication with patients and their families was enhanced by informing them of the potential risks and negative emotions that could arise during the procedure. Patients and their family members were also instructed to cooperate with the nursing staff, who provided psychological counseling and support to reduce the negative emotions experienced by the patients. Approximately 6-8 hours before each examination, the medical staff guided the patients through respiratory skill training. During the examination, the patients individually explained the key points and methods related to thoracic-abdominal respiration using theoretical explanations and on-site practical demonstrations. Any errors were immediately corrected using multiple practice iterations. The patients were also guided to master vocal muscle group exercises after the examination (often based on chewing exercises) to increase the overall safety of the examination. Before each examination, the nursing staff kept the examination area clean, quiet, and comfortable to alleviate the patient's fear of a strange environment. A detailed assessment was performed for each patient's physical condition, vital signs, allergy history, past medical history, presence of oral dentures, and other general conditions, such as fasting history, medication, and chronic diseases. Relevant first-aid drugs and equipment were prepared for each patient's unique circumstances and personalized emergency plans were formulated to address any potential emergencies arising during the procedure. During each examination, nurses assisted the patients in assuming the correct position and posture to prevent them from biting the device. Each patient's vital signs, facial expressions, and composition were carefully observed, and oral secretions were promptly cleared to prevent aspiration. Appropriate targeted psychological counseling was also used to divert each patient's attention using light music. All the intubation procedures were performed as gently as possible. Patients who experienced nausea or retching were instructed to swallow, and pressure was applied to the Neiguan, Hegu, and other acupressure points to relieve symptoms and reduce physical stress. After each examination, the patients' vital signs and level of consciousness were monitored in the waiting room for 30 minutes to check for any adverse reactions. The researchers re-emphasized all relevant precautions after each examination, answered any questions the patients had, and informed them that they needed to continue fasting and refrain from drinking until the anesthesia was worn off. Two hours after each examination, the patients were informed that they could drink water at will. If their swallowing function was normal, with no irritation or cough, they were permitted to ingest liquid food. Patients were also informed that a small amount of bleeding was normal after this procedure and that they would seek medical treatment if they experienced any serious discomfort.

Negative emotion assessment

Negative mood: Before and after the intervention, the two groups were evaluated using the self-rated anxiety scale (SAS) [4] and self-rated depression scale (SDS) [5]. These two scales comprise 20 evaluation items. Each item is rated on a 5-point

Likert scale, with higher scores (between 20 and 100 for each) indicating a more negative mood. SAS scale: Mild anxiety, 50-59 points; moderate anxiety, 60-69 points; severe anxiety, > 69 points. SDS scale: Mild depression, 53-62 points; moderate depression, 63-72 points; and severe depression, > 72 points.

Assessment of discomfort during examination

Discomfort and examination time: Discomfort during endoscope insertion and examination was evaluated in both patient groups using the visual analog scale (VAS)[6]. Vernier scores were marked on a scale ranging from 0 to 10. No discomfort was recorded as 0, and unbearable or serious discomfort was recorded as 10. Patients chose the scale subjectively, with higher scores indicating more intense discomfort. The total procedure time was recorded for each patient.

Evaluation of surgical cooperation

Degree of cooperation with the procedure: This parameter was assessed using a custom-developed digestive endoscopy compliance questionnaire consisting of three items (complete cooperation, basic cooperation, and noncooperation). Absolute cooperation indicates that the patient actively cooperated during the examination process and experienced only minor fluctuations in blood pressure and heart rate. Basic cooperation meant that the patient passively cooperated under the supervision of medical staff during the procedure. These patients experienced greater blood pressure and heart rate fluctuations than those in the active cooperation group; however, these remained within the tolerable range. Non-cooperation meant that the patients did not cooperate during the procedure even under the supervision of the medical staff, and their blood pressure and heart rate parameters fluctuated sufficiently to significantly impact successful examinations. Total degree of cooperation = absolute cooperation + general cooperation.

Complication assessment

Adverse gastrointestinal reactions, coughing, agitation, abdominal pain, and muscle tension were recorded in both groups.

Statistical analysis

Data were analyzed using SPSS 24.0. Enumeration data were described as the number of cases (*n*), and percentage (%), and analyzed using the χ^2 test. Measurement data were expressed as mean \pm SD, and analyzed *via* Student's *t*-tests. Values of *P* < 0.05 were considered statistically significant.

RESULTS

A comparison of negative mood changes between the two patient groups is summarized in Table 1. No significant differences were observed in SAS and SDS scores between the observation and control groups before the intervention (*P* > 0.05). After the intervention, the SAS and SDS scores were lower in both groups, with the observation group having significantly lower scores than the control group (*P* < 0.05).

A comparison of discomfort and procedure time between the two groups is summarized in Table 2. The VAS scores for discomfort during intubation and examination in the observation group were lower than in the control group (*P* < 0.05), and the examination time in the observation group was shorter (*P* < 0.05).

A comparison of the degrees of cooperation between the two groups is summarized in Table 3. The degree of cooperation in the observation group (94.35%) was higher than that in the control group (84.75%; *P* < 0.05). A comparison of complications between the two groups is also shown in Table 4. The incidences of gastrointestinal adverse reactions (10.17% *vs* 20.34%), choking agitation (14.69% *vs* 24.86%), abdominal pain (8.47% *vs* 18.08%), and muscle tension (5.08% *vs* 14.12%) were lower in observation group compared to the control group (*P* < 0.05).

DISCUSSION

Digestive endoscopy enables the direct and clear visualization of minute surface changes in the digestive tract mucosa. These include protrusions, depressions, roughness, and color alterations, all of which may be indicative of early stage cancer. Using endoscopy, physicians can intuitively evaluate the form, size, and margins of lesions, thereby offering crucial evidence for early detection. During endoscopic procedures, physicians can precisely perform tissue biopsies in suspected areas and obtain pathological specimens for further analysis. This aids in defining the nature of the lesion, determining its cancerous potential and staging, and provides vital information for formulating treatment strategies[7]. However, digestive endoscopy is an invasive procedure that can stimulate the digestive tract and cause discomfort, resulting in complications such as coughing and vomiting, which may reduce patient compliance with the procedure[8]. Several studies have shown that owing to a lack of understanding of digestive endoscopy, some patients may experience negative emotions related to the procedure, such as anxiety and fear[9,10]. This can lead them to resist the examination, further aggravating their discomfort, and affecting its progress. Routine nursing measures implemented around these procedures are typically relatively simple and involve only basic precautions that lack pertinence and comprehensiveness. Consequently, many patients experience a strong negative mood related to these procedures and exhibit low levels of cooperation, which can lead to complications. Therefore, it is necessary to devise new and effective nursing practices to improve negative mood and cooperation among patients undergoing digestive endoscopy.

Table 1 Comparison of negative mood changes between the two patient groups (points)

Groups	Number	SAS		SDS	
		Before Intervention	After intervention	Before intervention	After intervention
Control group	177	62.67 ± 5.33	42.87 ± 5.11 ^a	60.03 ± 5.60	40.68 ± 4.91 ^a
Observation group	177	63.05 ± 5.46	37.49 ± 4.82 ^a	60.48 ± 5.53	36.75 ± 4.58 ^a
<i>t</i> value		0.651	10.189	0.754	7.797
<i>P</i> value		0.516	< 0.001	0.451	< 0.001

^a*P* < 0.05 compared with the group before the intervention.

SDS: Self-rated depression scale; SAS: Self-rated anxiety scale.

Table 2 Comparison of discomfort and procedure time between the two groups (points)

Groups	Number	Discomfort ableness (points)		Examination time (minutes)
		Inserting colonoscope	Examination	
Control group	177	3.17 ± 0.54	3.32 ± 0.61	36.44 ± 8.52
Observation group	177	2.62 ± 0.49	2.85 ± 0.65	27.39 ± 7.18
<i>t</i> value		10.145	7.024	10.797
<i>P</i> value		< 0.001	< 0.001	< 0.001

Table 3 Comparison of degree of cooperation between the two groups, *n* (%)

Group	Number	Absolute cooperation	General cooperation	None cooperation	Cooperation degree
Control group	177	81 (45.76)	69 (38.98)	27 (15.25)	150 (84.75)
Observation group	177	129 (72.88)	38 (21.47)	10 (5.65)	167 (94.35)
χ^2					8.723
<i>P</i> value					0.003

Table 4 Comparison of complications between the two groups, *n* (%)

Groups	Number	Gastrointestinal adverse reaction	Choking	Abdominal pain	Muscular tension
Control group	177	36 (20.34)	44 (24.86)	32 (18.08)	25 (14.12)
Observation group	177	18 (10.17)	26 (14.69)	15 (8.47)	9 (5.08)
χ^2		7.080	5.769	7.090	8.329
<i>P</i> value		0.008	0.016	0.008	0.004

The results showed that the SAS and SDS scores related to negative mood after the intervention were significantly lower in the observation group than in the control group. This suggests that comprehensive integrated management combined with cognitive intervention has an excellent effect on improving negative emotions in patients undergoing digestive endoscopy, similar to the results of previous studies [11,12]. According to our analysis, a combination of comprehensive integrated management and cognitive intervention can provide patients with more comprehensive, scientific, and systematic nursing services; ensure the quality of nursing; and strengthen both physical and mental health [13,14]. In this study, the observation group was given comprehensive integrated management combined with cognitive intervention to explain the purpose, matters needing attention, cooperation methods, and complications of the examination in full detail before the examination, which proved helpful in alleviating the negative psychological symptoms of patients (*e.g.*, resistance and anxiety). The implementation of targeted psychological counseling before and during examinations can also alleviate a patient's negative mood in a timely manner. Instructing patients to answer questions after an examination can also make them feel psychologically supported and satisfied, which may allow them

to maintain a good state of mind. Niu[15] pointed out that the implementation of effective health education, targeted psychological counseling, care, and support for patients undergoing digestive endoscopy could significantly alleviate anxiety, unrest, and other negative emotions, which is similar to our results. The results of this study showed that, compared with the control group, the VAS score for discomfort during intubation and examination in the observation group was lower, examination time was shorter, and examination cooperation was higher. This suggests that comprehensive integrated management combined with cognitive intervention can effectively reduce the discomfort experienced by patients undergoing digestive endoscopy, improve their level of cooperation during the examination, and promote more successful procedures. According to this analysis, the occurrence of discomfort in patients undergoing digestive endoscopy was related to several factors, including mood and limb tension[16]. Cheng *et al*[17] reported that by improving patients' negative moods, enhancing their knowledge of the procedure, and establishing a good nurse-patient relationship, their levels of confidence and cooperation in the examinations could be improved, and discomfort could be reduced. In this study, the observation group received a variety of interventions designed to help them learn to cooperate with the operation as well as respiratory skills training before the procedure. Mock procedures were also performed as on-site simulations, which represented an important measure for improving the degree of cooperation and shortening the examination time. During the examination, a comfortable environment, effective psychological counseling, and playing light music helped patients relax, distract their attention, and reduce their subjective feelings of pain, thus reducing the discomfort caused by the examination. This helped improve their levels of trust in the medical staff, enhance their sense of security, reduce their fear of the examination, and ultimately encouraged them to cooperate with relevant examination operations. This study's results showed that the incidence of complications in the observation group was 5.08%, which was lower than that in the control group (14.12%). This suggests that a combination of comprehensive integrated management and cognitive intervention can effectively reduce the risk of complications in patients undergoing digestive endoscopy, which is consistent with the results of previous studies[18]. Discomfort caused by digestive endoscopy not only aggravates negative mood but can also cause complications such as cough, nausea, and vomiting[19]. In addition to effectively improving the patient's mood and reducing discomfort during examinations, close observation of the patient's vital signs and composition can enable timely assessment of each patient's throat condition and reduce complications. Breathing skills training before the examination can help patients adjust their breathing correctly during the procedure and reduce the risk of cough and reflux. Vocal muscle exercises can also help patients relax their vocal muscles, improve pharyngeal tension and comfort, and reduce the incidence of postprocedural complications such as nausea, vomiting, and cough. Guo *et al*[20] implemented comprehensive holistic nursing for the diagnosis and treatment of painless gastrointestinal endoscopy in patients with gastrointestinal disease to improve their psychological state and physiological responses. Their results showed that this approach effectively promoted greater stability of the patients' vital signs and reduced the risk of complications, similar to the results of this study.

CONCLUSION

Comprehensive integrated management combined with cognitive interventions is important in patients undergoing digestive endoscopy. This approach can effectively alleviate patients' negative moods, reduce discomfort, shorten examination times, improve cooperation during examinations, and reduce the risk of complications. Therefore, this approach merits further clinical applications.

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FOOTNOTES

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REFERENCES

- 1 Spagnuolo R, Corea A, Blumetti M, Giovinazzo A, Serafino M, Pagliuso C, Pagnotta R, Curto G, Cosco C, Cosco V, Mancina RM, Garieri P, Papaleo A, Grande L, Barilaro A, Garofalo E, Bruni A, Doldo P. Effects of listening to music in digestive endoscopy: A prospective intervention study led by nursing. *J Adv Nurs* 2020; **76**: 2993-3002 [PMID: [32901972](https://pubmed.ncbi.nlm.nih.gov/32901972/) DOI: [10.1111/jan.14516](https://doi.org/10.1111/jan.14516)]
- 2 Weyer-Jamora C, Brie MS, Luks TL, Smith EM, Hervey-Jumper SL, Taylor JW. Postacute Cognitive Rehabilitation for Adult Brain Tumor Patients. *Neurosurgery* 2021; **89**: 945-953 [PMID: [33586764](https://pubmed.ncbi.nlm.nih.gov/33586764/) DOI: [10.1093/neuros/nyaa552](https://doi.org/10.1093/neuros/nyaa552)]
- 3 Rucinski K, Crecelius CR, Stucky R, Stannard JP, Cook JL. Integrated Care for Comprehensive Management of Patients with Osteoarthritis: Program Development and Implementation. *J Knee Surg* 2023; **36**: 1392-1398 [PMID: [37220783](https://pubmed.ncbi.nlm.nih.gov/37220783/) DOI: [10.1055/s-0043-1768966](https://doi.org/10.1055/s-0043-1768966)]
- 4 Zung WW. A rating instrument for anxiety disorders. *Psychosomatics* 1971; **12**: 371-379 [PMID: [5172928](https://pubmed.ncbi.nlm.nih.gov/5172928/) DOI: [10.1016/S0033-3182\(71\)71479-0](https://doi.org/10.1016/S0033-3182(71)71479-0)]
- 5 Zung WW. A self-rating depression scale. *Arch Gen Psychiatry* 1965; **12**: 63-70 [PMID: [14221692](https://pubmed.ncbi.nlm.nih.gov/14221692/) DOI: [10.1001/archpsyc.1965.01720310065008](https://doi.org/10.1001/archpsyc.1965.01720310065008)]
- 6 Faiz KW. [VAS--visual analog scale]. *Tidsskr Nor Laegeforen* 2014; **134**: 323 [PMID: [24518484](https://pubmed.ncbi.nlm.nih.gov/24518484/) DOI: [10.4045/tidsskr.13.1145](https://doi.org/10.4045/tidsskr.13.1145)]
- 7 Gonsorčíková L, Netvalová S, Vyhnanek R, Bauer D, Fabián O. The role of endoscopy in non-oncologic gastrointestinal disorders in pediatric patients. *Cesk Patol* 2022; **58**: 100-106 [PMID: [35882544](https://pubmed.ncbi.nlm.nih.gov/35882544/)]
- 8 Gotoda T, Akamatsu T, Abe S, Shimatani M, Nakai Y, Hatta W, Hosoe N, Miura Y, Miyahara R, Yamaguchi D, Yoshida N, Kawaguchi Y, Fukuda S, Isomoto H, Irisawa A, Iwao Y, Uraoka T, Yokota M, Nakayama T, Fujimoto K, Inoue H. Guidelines for sedation in gastroenterological endoscopy (second edition). *Dig Endosc* 2021; **33**: 21-53 [PMID: [33124106](https://pubmed.ncbi.nlm.nih.gov/33124106/) DOI: [10.1111/den.13882](https://doi.org/10.1111/den.13882)]
- 9 Lauriola M, Tomai M, Palma R, La Spina G, Foglia A, Panetta C, Raniolo M, Pontone S. Intolerance of Uncertainty and Anxiety-Related Dispositions Predict Pain During Upper Endoscopy. *Front Psychol* 2019; **10**: 1112 [PMID: [31156518](https://pubmed.ncbi.nlm.nih.gov/31156518/) DOI: [10.3389/fpsyg.2019.01112](https://doi.org/10.3389/fpsyg.2019.01112)]
- 10 Proffit DD. Describing and Predicting Preprocedural Anxiety in Patients Scheduled for Advanced Gastrointestinal Endoscopy During the COVID-19 Pandemic. *Gastroenterol Nurs* 2023; **46**: 475-488 [PMID: [37639614](https://pubmed.ncbi.nlm.nih.gov/37639614/) DOI: [10.1097/SGA.0000000000000766](https://doi.org/10.1097/SGA.0000000000000766)]
- 11 Shi Y, Sang J, Sang Y. Analysis of the Influence of Comprehensive Nursing Intervention on Vital Signs and Negative Emotions of Patients with Gastrointestinal Polyps Treated by Digestive Endoscopy. *Comput Intell Neurosci* 2022; **2022**: 5931588 [PMID: [35785053](https://pubmed.ncbi.nlm.nih.gov/35785053/) DOI: [10.1155/2022/5931588](https://doi.org/10.1155/2022/5931588)]
- 12 Karatas TC, Gezginci E. The Effect of Using a Stress Ball During Endoscopy on Pain, Anxiety, and Satisfaction: A Randomized Controlled Trial. *Gastroenterol Nurs* 2023; **46**: 309-317 [PMID: [37199436](https://pubmed.ncbi.nlm.nih.gov/37199436/) DOI: [10.1097/SGA.0000000000000739](https://doi.org/10.1097/SGA.0000000000000739)]
- 13 Ferrazzoli D, Ortelli P, Cucca A, Bakdounes L, Canesi M, Volpe D. Motor-cognitive approach and aerobic training: a synergism for rehabilitative intervention in Parkinson's disease. *Neurodegener Dis Manag* 2020; **10**: 41-55 [PMID: [32039653](https://pubmed.ncbi.nlm.nih.gov/32039653/) DOI: [10.2217/nmt-2019-0025](https://doi.org/10.2217/nmt-2019-0025)]
- 14 Maxwell A, Zouki JJ, Eapen V. Integrated cognitive behavioral intervention for functional tics (I-CBIT): case reports and treatment formulation. *Front Pediatr* 2023; **11**: 1265123 [PMID: [38034832](https://pubmed.ncbi.nlm.nih.gov/38034832/) DOI: [10.3389/fped.2023.1265123](https://doi.org/10.3389/fped.2023.1265123)]
- 15 Niu Y. Influence of Standardized Nursing Management of Hospital Based on Smart Electronic Medical Blockchain on Nursing Quality of Digestive Endoscopy Room. *J Healthc Eng* 2021; **2021**: 5539901 [PMID: [33995983](https://pubmed.ncbi.nlm.nih.gov/33995983/) DOI: [10.1155/2021/5539901](https://doi.org/10.1155/2021/5539901)]
- 16 Khan AA, Ali A, Khan AS, Shafi Y, Masud M, Irfan F, Abaidullah S. Effects of visual aid on state anxiety, fear and stress level in patients undergoing endoscopy: a randomized controlled trial. *Ann Med* 2023; **55**: 1234-1243 [PMID: [37078544](https://pubmed.ncbi.nlm.nih.gov/37078544/) DOI: [10.1080/07853890.2023.2191000](https://doi.org/10.1080/07853890.2023.2191000)]
- 17 Cheng D, Long X, Li W. Effect of evidence-based nursing on lower limb thrombosis and negative emotion after hip arthroplasty. *Minerva Surg* 2023; **78**: 459-461 [PMID: [35266678](https://pubmed.ncbi.nlm.nih.gov/35266678/) DOI: [10.23736/S2724-5691.22.09495-3](https://doi.org/10.23736/S2724-5691.22.09495-3)]
- 18 Yang J, Yang J, Guo D, Zhao Q, Chen Y. Outcome of Nursing Based on Health Belief United with Knowledge, Belief, and Practice Mode on Gastroscopy of Patients with Gastric Cancer. *Comput Math Methods Med* 2022; **2022**: 9491454 [PMID: [36226241](https://pubmed.ncbi.nlm.nih.gov/36226241/) DOI: [10.1155/2022/9491454](https://doi.org/10.1155/2022/9491454)]
- 19 Aksu C. Effects of Music on Anxiety, Pain, and Comfort in Patients Undergoing Upper Endoscopy: A Randomized Clinical Trial. *Gastroenterol Nurs* 2023; **46**: 428-435 [PMID: [37678807](https://pubmed.ncbi.nlm.nih.gov/37678807/) DOI: [10.1097/SGA.0000000000000782](https://doi.org/10.1097/SGA.0000000000000782)]
- 20 Guo Q, Jiang W, Wang Y, Xue X, Mu D, Chen N, Wang P. Observation on the effect, satisfaction and nursing quality of whole-course nursing in patients undergoing electronic gastroscopy. *Minerva Surg* 2023; **78**: 104-106 [PMID: [34790937](https://pubmed.ncbi.nlm.nih.gov/34790937/) DOI: [10.23736/S2724-5691.21.09237-6](https://doi.org/10.23736/S2724-5691.21.09237-6)]



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