

Research Article

Reliability Test of the Oral Nutritional Supplement Adherence Assessment Scale for Colorectal Cancer Patients

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Received 4 March 2025; Revised 7 August 2025; Accepted 12 September 2025

Academic Editor: Sowjanya Thatikonda

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Background: This study aimed to evaluate the reliability of a self-administered oral nutritional supplement adherence assessment scale for patients with colorectal cancer.

Methods: A presurvey was conducted with 25 colorectal cancer patients already taking nutritional supplements, obtained using purposive sampling to assess the comprehensibility and linguistic expression of the scale items. Following this, 310 questionnaires were distributed during the main survey, with 303 validly returned, yielding a validity rate of 97.74%.

Results: The scale underwent linguistic debugging, resulting in a final version comprising 3 dimensions and 28 items. Exploratory factor analysis (EFA) demonstrated statistically significant KMO values ranging from 0.864 to 0.902 for the three dimensions ($p < 0.001$). Two common factors were extracted from the knowledge dimension, contributing to a cumulative variance of 66.22%. One common factor was extracted from the belief dimension, with a cumulative variance contribution of 66.29%. The behavior dimension also demonstrated a cumulative variance contribution of 61.78%. The scale exhibited a Cronbach's α coefficient of 0.904, split-half reliability of 0.857, a retest reliability coefficient of 0.859, and a content validity index (S-CVI) of 0.903.

Conclusion: The developed oral nutritional supplement adherence assessment scale for colorectal cancer patients demonstrated strong reliability and validity, making it an effective tool for evaluating adherence to oral nutritional supplementation. This scale can serve as a reference for the future development of related assessment tools and may contribute to improving nutritional management and clinical outcomes for patients with colorectal cancer.

Keywords: adherence; colorectal cancer patients; oral nutritional supplementation; reliability; scale; validity

1. Introduction

Colorectal cancer is one of the most common malignancies worldwide, and the Global Cancer Statistics 2020 report shows that it is the 3rd (10%) most prevalent cancer and the 2nd (9.4%) leading cause of death [1]. The 2018 statistical report from the China Cancer Center states that there were approximately 376,000 new cases and 191,000 deaths due to colorectal cancer. This cancer ranks third in terms of incidence and fifth in terms of mortality among all cancer

types in China [2]. The significant prevalence and mortality rate of colorectal cancer poses a grave risk to human life.

Studies have reported that the prevalence of malnutrition among cancer patients is as high as 40% to 80%, and the prevalence of nutritional risk is as high as 39% to 68% [3]. Compared with other cancer patients, colorectal cancer patients have a higher incidence of malnutrition and nutritional risk due to the specificity of the tumor site. The incidence of malnutrition is as high as 30% to 50% [4]. During the diagnosis and treatment of colorectal cancer,

surgery, radiotherapy, etc., will aggravate the impact of malnutrition and further worsen the condition [5]. Study [6] has confirmed the importance of combining nutritional therapy throughout the treatment of colorectal cancer. The European Society for Parenteral Enteral Nutrition Guidelines recommends oral nutritional supplements (ONS) as the first choice for nutritional therapy [7]. ONS has been shown to be clinically effective, but its success depends on adequate long-term use, requiring a high level of adherence [8]. However, national and international studies have demonstrated that ONS adherence is generally low, largely due to taste preferences and lack of awareness [9, 10].

Despite the clinical effectiveness of ONS, improving adherence remains a critical challenge. ONS adherence is key to enhancing patient outcomes, as supported by literature recommending that clinical staff regularly monitor and supervise patients to ensure compliance [8, 10]. While significant research has been conducted on colorectal cancer treatment and nutrition, few studies have specifically assessed ONS adherence among colorectal cancer patients, and the available assessment tools often lack specificity and comprehensiveness [11].

The main aim of this study is to evaluate the reliability and validity of a self-administered ONS Adherence Assessment Scale for colorectal cancer patients. This study hypothesizes that improved adherence measurement will correlate with better clinical outcomes and overall patient nutrition management. Given the limitations of existing tools, this study seeks to address the gap in targeted assessments for this patient population. It also explores potential constraints, such as personalizing assessment tools for specific subgroups within colorectal cancer patients.

2. Materials and Methods

2.1. Overall Conceptualization and Design Principles. The ONS Adherence Assessment Scale for colorectal cancer patients was meticulously developed under the guidance of the “knowledge, beliefs, and behaviors” theory. This scale comprises three interconnected modules: knowledge, beliefs, and behaviors. The construction of the scale was informed by elements from the Morisky Medication Adherence Scale [12], as well as ONS-related knowledge derived from literature and clinical practice aligned with oncology nutrition guidelines [13]. A Delphi method was employed to ensure expert input, consulting 20 senior experts in the field. The scale’s dimensions and entries were evaluated over two iterative rounds, allowing for comprehensive feedback. After incorporating the experts’ modifications, a pretest scale was constructed, and language adjustments were made based on feedback from a small sample presurvey. This rigorous process led to a finalized scale to ensure scientific reliability by systematically analyzing the items.

2.2. Item Analysis of the Scale

- **Critical ratio method:** This analysis identified entries with a critical ratio of < 3.00 as poor discriminators. All items achieved statistically significant *t*-test results

($p < 0.001$), and all essential ratio values exceeded 3.0, indicating strong discrimination among the items.

- **Discrete trend method:** Standard deviations for all scale entries ranged from 0.873 to 1.307, reflecting a satisfactory level of dispersion and sensitivity, with no items falling below the threshold of 0.75, suggesting robust reliability.
- **Correlation coefficient method:** Entries with a correlation coefficient < 0.3 were flagged for potential deletion in this analysis. For instance, item A4, concerning abdominal discomfort, was removed due to a correlation of 0.298, while the remaining items exhibited correlation coefficients ranging from 0.381 to 0.840, thus maintaining interitem reliability.
- **Cronbach’s alpha coefficient:** The scale exhibited excellent internal consistency, demonstrated by a Cronbach’s alpha coefficient of 0.904.

2.3. Construction of the Initial Scale. The initial scale for assessing ONS adherence among colorectal cancer patients was established through a preliminary study involving 25 patients. These patients took between 9 and 22 min to complete the scale. Feedback revealed that entry 12, regarding family support, needed clarification to represent patient experiences accurately. Consequently, revisions were made, including a specific example for entry 12 in the knowledge dimension, enhancing the clarity and relevance of the scale items. Following adjustments, the initial scale comprised three dimensions and 33 entries.

2.4. Reliability Test of the Scale. A comprehensive clinical questionnaire survey was conducted from June 2020 to January 2021. The survey utilized convenience sampling among inpatients diagnosed with colorectal cancer in three tertiary care hospitals located in Guangzhou. Inclusion criteria encompassed age ≥ 18 years, confirmed colorectal cancer diagnosis, ongoing ONS usage for ≥ 3 days, the ability to communicate effectively, and willingness to participate in the study. Exclusion criteria included individuals with severe comorbidities or psychosomatic disorders. Ethical approval for this study was granted by the Institutional Review Board (IRB) of the First Affiliated Hospital of Jinan University (No. KY-2020-091), with written informed consent obtained from all participants before involvement in the study.

2.5. Survey Tools. The research team designed a general information questionnaire to capture demographic, disease, and treatment-related data. The ONS adherence assessment scale was developed through a literature review, expert consultations via the Delphi method, and presurvey feedback. It featured three dimensions and 33 items, employing a 5-point Likert scale for scoring. The knowledge dimension utilized reverse scoring, while the beliefs’ dimension employed positive scoring, with behavioral items having varied scoring mechanisms. Higher scores were indicative of better adherence to ONS.

2.6. Survey Method. Data collection was performed using a combination of on-site surveys and detailed case reviews. The survey was designed to simplify content, ensure completion within 10–15 min, provide clear definitions of response options, include examples for technical terms, and employ user-friendly formats such as large font sizes and adequate line spacing to minimize respondent burden. Furthermore, questionnaire completeness was verified prior to submission, as all items were designated as mandatory fields. Prior to survey administration, participants were asked about their willingness to complete the form, followed by an explanation of the survey's purpose, which was to understand nutrient usage patterns to provide tailored recommendations. The use of the evaluation form was then described, emphasizing that it consisted of multiple-choice questions. Participants were assured that responses should reflect their actual situation, emphasizing that there were no right or wrong answers. The scope of nutritional content was clarified, and confidentiality of responses was explicitly assured. Following informed consent, the investigator provided standardized questioning for illiterate patients, assisting them in completing the questionnaire. Completed questionnaires were checked for accuracy on-site and collected immediately.

2.7. Statistical Analysis. Data from the recovered questionnaires were entered into a database using Excel 2016, with two-person proofreading to ensure data integrity. Statistical analyses were performed using SPSS 27.0 software. Descriptive statistics were calculated for demographic and clinical characteristics, including means, standard deviations, frequencies, and percentages. Item analysis assessed scale entries through mean scores and standard deviations. Reliability assessments were conducted using Cronbach's alpha to evaluate internal consistency (threshold of 0.70), split-half reliability by correlating two halves of the scale, and retest reliability with a subset of participants completing the scale again after 2 weeks. Inferential statistics, including chi-square tests for categorical variables and independent *t*-tests or ANOVA for continuous variables, were employed to test for differences or associations, with significance set at $p < 0.05$. All analyses were two-tailed, ensuring a comprehensive evaluation of the data.

3. Results

3.1. Characteristics of the Research Participants. A clinical questionnaire survey was conducted with 310 colorectal cancer patients from three tertiary-level general hospitals in Guangzhou. A total of 303 valid questionnaires were recovered, resulting in an effective rate of 97.74%. Table 1 shows that patients' ages ranged from 19 to 85 years, with a mean age of 59.99 ± 12.27 years. Among the participants, 177 were male, and 126 were female, indicating that male patients comprised the majority. The patients' body mass index (BMI) ranged from 14.10 to 33.70 kg/m^2 , with a mean of $21.90 \pm 3.16 \text{ kg/m}^2$. Two hundred forty-nine cases reported taking nutritional supplements, such as Ansol, while

54 were on other supplements. The duration of nutritional supplement intake varied, with 157 patients taking them for 3–4 days, 96 for 5–7 days, and 50 for more than 7 days.

3.2. Scale Development Overview. The pretest scale was initially constructed using the Delphi method, through which an initial pool of 33 items was developed based on feedback from 25 patients. Subsequently, exploratory factor analysis (EFA) was conducted, employing criteria such as removing items with factor loadings < 0.4 , cross-loadings > 0.4 , or communalities < 0.2 . This process resulted in a finalized scale comprising 28 items (Supporting table 1).

3.3. Validity Analysis of the ONS Adherence Assessment Scale

- **Content Validity:** The content validity index at the scale level (S-CVI) and item level (I-CVI) were evaluated. I-CVI reflects the ratio of experts scoring relevance at 3 or 4 to the total number of experts, while S-CVI is the mean of all I-CVIs. The content validity of the total scale was 0.903, with individual item validity ranging from 0.818 to 1.00.
- **Construct Validity:** EFA was performed on the 30 retained entries. The Kaiser–Meyer–Olkin (KMO) value and Bartlett's spherical test confirmed the suitability for EFA. The analysis criteria included removing entries with a common factor loading < 0.4 or multiple loadings > 0.4 and commonality < 0.2 . The EFA was conducted using a subdimensional method across three dimensions: knowledge, beliefs, and behaviors.

Results from EFA revealed three analyses for the knowledge dimension (11 items), with KMO and Bartlett's test values of 0.870, 0.867, and 0.864, respectively ($p < 0.001$). Items A8 and A12 were deleted due to low loading values. For the belief dimension, EFA on 7 items yielded KMO and Bartlett's test values of 0.902 and 1315.551 ($p < 0.001$), allowing the extraction of one common factor explaining 66.287% of the variance, as detailed in Table 2. In the behavioral dimension, analysis of 12 items provided KMO and Bartlett's values of 0.872 and 1674.576 ($p < 0.001$), revealing two factors with eigenvalues of 3.761 and 3.652 and explained variances of 31.345% and 30.443%. After analysis, 28 entries were retained, suggesting 5 main factors (see Table 3), aligning with the gravel plot trend. The factor loading values and commonality for the knowledge dimension are presented in Table 4, while Table 5 summarizes the factor loading values and commonality of behavioral dimensions.

3.4. Reliability Analysis of the ONS Adherence Assessment Scale

- **Cronbach's Alpha Coefficient:** The internal consistency reliability was evaluated by calculating Cronbach's alpha coefficient for the total scale and each dimension. The total scale yielded a coefficient of

TABLE 1: Baseline of research objectives ($n = 303$).

Factors		Number	Percent (%)	Alpha (95% CI)
Age (years)	18–40	18	6	0.937 (0.896, 0.977)
	41–60	131	43	0.895 (0.869, 0.921)
	61–80	144	48	0.905 (0.882, 0.928)
	> 80	10	3	0.948 (0.901, 0.996)
Gender	Male	177	58	0.911 (0.891, 0.930)
	Female	126	42	0.893 (0.865, 0.920)
BMI	< 18.5	39	13	0.888 (0.837, 0.938)
	18.5–23.9	191	63	0.906 (0.886, 0.925)
	24.0–27.9	63	21	0.904 (0.870, 0.938)
	≥ 28.0	9	3	0.924 (0.855, 0.992)
Degree of education	Primary school level/illiteracy	92	30	0.908 (0.881, 0.936)
	Junior high school level	122	40	0.906 (0.882, 0.931)
	High school level	38	13	0.850 (0.781, 0.920)
	College level or above	51	17	0.916 (0.882, 0.950)
Occupations	Staff	66	22	0.894 (0.856, 0.931)
	The self-employed	11	4	0.868 (0.762, 0.974)
	Farmer	18	6	0.926 (0.877, 0.974)
	Retirement	80	26	0.918 (0.892, 0.944)
	Other	129	43	0.889 (0.860, 0.917)
Marital status	Unmarried	10	3	0.822 (0.666, 0.979)
	Married	252	83	0.910 (0.894, 0.926)
	Widowed spouse	23	8	0.873 (0.796, 0.950)
	Get divorced	18	6	0.881 (0.802, 0.960)
Place of residence	Towns and cities	238	79	0.902 (0.884, 0.920)
	Rural areas	65	21	0.904 (0.871, 0.938)
Religious beliefs	Yes	22	7	0.906 (0.850, 0.963)
	No	281	93	0.904 (0.887, 0.920)
Per capita monthly household income (RMB)	< 1000	25	8	0.901 (0.844, 0.957)
	1000–3000	83	27	0.886 (0.850, 0.921)
	3000–5000	88	29	0.919 (0.895, 0.944)
	> 5000	107	35	0.878 (0.845, 0.912)
Medical payment methods	Medical insurance	231	76	0.913 (0.897, 0.930)
	New rural cooperative medical system	37	12	0.839 (0.764, 0.914)
	Free medical care	6	2	0.950 (0.888, 1.012)
	Other	29	10	0.845 (0.763, 0.926)
Diagnosis	Colon cancer	182	60	0.908 (0.888, 0.927)
	Rectal cancer	121	40	0.897 (0.870, 0.924)
Stage of cancer	Early	34	11	0.878 (0.817, 0.939)
	Advanced	152	50	0.891 (0.866, 0.917)
	Other	117	39	0.921 (0.901, 0.942)
Phase of treatment	Chemoradiotherapy	98	32	0.927 (0.905, 0.948)
	Perioperative period	199	66	0.878 (0.853, 0.903)
	Postoperative recovery period	6	2	0.940 (0.875, 1.005)
Types of nutritional supplements	Enteral nutrition powder	249	82	0.906 (0.889, 0.923)
	Other	54	18	0.842 (0.781, 0.903)
Days to take nutritional supplements	3–5	157	52	0.883 (0.856, 0.910)
	5–7	96	32	0.912 (0.887, 0.938)
	> 7	50	17	0.889 (0.843, 0.935)
Sources of nutritional supplements	Self-purchase	88	29	0.909 (0.881, 0.937)
	Doctor’s advice	215	71	0.901 (0.881, 0.920)

0.904, while individual dimensions ranged from 0.780 to 0.915 (refer to Table 6). The Cronbach's alpha coefficient and reliability range for each subgroup are presented in Table 1. These results indicate that the scale demonstrates acceptable internal consistency

across all subgroups. Additionally, we compared the scores on each item between male and female participants. No significant gender differences were observed for any item, as confirmed by both parametric and nonparametric tests (Supporting table 2).

TABLE 2: Factor loading values and commonality of belief dimensions.

Entry	Factor load value		Commonality
	1		
B1 I think I need to take oral supplements now	0.804		0.647
B2 I think that taking oral nutritional supplements will be beneficial to the recovery of my disease	0.842		0.709
B3 I know that oral supplements do not taste good, but I can still take them consistently	0.81		0.656
B4 I think I can take oral nutritional supplements consistently for a long time	0.817		0.668
B5 I think I will follow the instructions given by my health care provider during treatment to take	0.836		0.699
B6 I think my body can adjust if I have uncomfortable reactions such as bloating and diarrhea after taking oral nutritional supplements	0.78		0.608
B7 Oral nutritional supplements help accelerate recovery and maintain health without increasing my medical costs	0.808		0.653

TABLE 3: Distribution of dimensions and entries of the scale.

Dimensionality	Number of entries	Entry number
Knowledge section	9	A1, A2, A3, A4, A5, A6, A7, A8, A9
Beliefs section	7	B1, B2, B3, B4, B5, B6, B7
Behavior section	12	C1, C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12

TABLE 4: Knowledge dimension factor loading values and commonality.

Entry	Factor load value		Commonality
	1	2	
A1 I understand that malnutrition or nutritional risk can adversely affect my recovery from disease	—	0.851	0.742
A2 I know the therapeutic effects of oral nutritional supplements	—	0.869	0.784
A3 I understand that oral nutritional supplements need to be taken consistently for a period of time to show results	—	0.801	0.699
A6 I know to follow the principle of taking from thin to thick, from less to more	—	0.711	0.592
A5 I understand that oral nutritional supplements can be taken between meals or within meals	0.694	—	0.585
A7 I know the appropriate temperature for taking oral nutritional supplements	0.732	—	0.592
A9 I know the number of oral nutritional supplements to take daily	0.774	—	0.607
A10 I know the single dose for taking oral nutritional supplements	0.792	—	0.658
A11 I know the total daily dose for taking oral nutritional supplements	0.811	—	0.700

- Split-Half Reliability: The split-half reliability assessment revealed a reliability coefficient of 0.857 for the total scale, with individual dimensions ranging from 0.772 to 0.915. This indicates strong internal consistency across the scale, suggesting that the items within each dimension effectively measure the same underlying construct. These results support the reliability of the ONS Adherence Assessment Scale for colorectal cancer patients, ensuring that the findings derived from the scale are stable and reproducible over time.

4. Discussion

Colorectal cancer patients are at high risk of malnutrition, and ONS are the preferred route for providing nutritional support in patients with normal gastrointestinal function. ONS can significantly improve nutritional status and clinical outcomes [14, 15]. However, studies have shown that

healthcare professionals must consider patient tolerance and adherence when implementing ONS therapy. Currently, a major barrier to effective ONS usage is the lack of awareness among colorectal cancer patients and their families, which has led to poor compliance. To address this, medical staff must employ effective psychosocial assessment tools to identify the causes of noncompliance and implement early interventions to enhance adherence.

There is no established compliance scale for evaluating ONS adherence among colorectal cancer patients. Most existing assessment tools do not comprehensively address the knowledge, attitudes, and behaviors related to ONS use. Therefore, developing an assessment scale for ONS adherence tailored to colorectal cancer patients is essential. This study created a scale through literature review, qualitative interviews, the Delphi method, and presurvey techniques to standardize ONS management and guide healthcare providers in formulating tailored intervention strategies.

TABLE 5: Factor loading values and commonality of behavioral dimensions.

Entry	Factor load value		Commonality
	1	2	
C1 When I encountered nutrition problems in my life, I sought help from health care professionals or through official online platforms	0.809	—	0.655
C2 I will take the initiative to seek help from the medical staff if I do not understand any problem during administration	0.829	—	0.69
C3 When there is a discrepancy in the way the healthcare provider instructs me to take it, I will ask for clarification before taking it	0.806	—	0.649
C5 I have changed the dose or discontinued it on my own after felt that my symptoms had improved	0.811	—	0.66
C12 I use an aid such as a smartphone or record card to remind me to take	0.751	—	0.583
C13 Family support or reminders have helped me to stick to taking	0.739	—	0.548
C4 I have missed oral supplements because I forgot to take them	—	0.756	0.574
C7 I have interrupted or reduced my dose because of a change in taste	—	0.776	0.603
C8 I have discontinued taking oral supplements due to intolerance symptoms such as bloating or diarrhea	—	0.843	0.711
C9 I have changed my dose on my own due to mood changes	—	0.8	0.64
C10 I have decided my own dosage due to lack of guidance from my health care provider on how to take it	—	0.78	0.609
C11 I have discontinued taking it on my own for financial reasons	—	0.701	0.491

TABLE 6: Cronbach's alpha coefficient, split-half reliability, and retest reliability for each dimension of the scale and the total scale.

Dimensionality	Number of entries	Cronbach's alpha coefficient	Split-half reliability coefficient	Retest reliability coefficient
Knowledge dimension	9	0.869	0.722	0.694**
Belief dimension	7	0.915	0.897	0.874**
Behavioral dimensions	12	0.780	0.774	0.753**
Total table	28	0.904	0.857	0.859**

** $p < 0.05$.

The feasibility of the scale was assessed through three indicators: recall rate, efficiency rate, and completion time [16, 17]. A presurvey involving 25 colorectal cancer patients confirmed the scale's comprehensibility and feasibility. Results indicated a recovery rate of 100%, an effective recovery rate of 97.7%, and a completion time of 7–20 min, demonstrating that the scale is both practical and acceptable for patients [18].

Using the “knowledge, trust, and action” theory as a conceptual framework, the initial item pool was established through an extensive literature review and qualitative interviews. Twenty experts from various fields, including nutrition, oncology, education, and management, conducted two consultations, leading to the final scale comprising 28 items across three dimensions. The items were analyzed using multiple methods, including the critical ratio method, discrete trend method, correlation coefficient method, Cronbach coefficient method, and EFA, validating the scale's reliability and structural integrity.

In evaluating the scale's validity, the S-CVI was 0.903, and the I-CVI ranged from 0.818 to 1.000, both exceeding recommended values, indicating strong content validity. The EFA revealed KMO values of 0.864, 0.902, and 0.872 for the three dimensions, with Bartlett's test achieving significance ($P < 0.001$), confirming the scale's suitability for analysis [19]. Factors retained after the analysis explained over 60%

of the variance, indicating robust theoretical alignment. Notably, all scale items demonstrated loading values above 0.4, except for entries A8 and A12, which were excluded due to low loading, reinforcing the scale's structural validity.

The scale exhibited excellent internal consistency, with a Cronbach's alpha coefficient 0.904. Split-half reliability coefficients were greater than 0.7, indicating good cross-entry consistency [20]. Retest reliability calculations, while slightly affected by heightened patient interest in nutrition knowledge postsurvey, indicated stability across dimensions with coefficients above 0.7 [21].

In summary, this study developed a scale encompassing three dimensions and 28 items, which offers a reliable tool for measuring ONS adherence among colorectal cancer patients. Despite its strengths, this study is limited by its geographical scope, as it was conducted in only three tertiary hospitals in Guangzhou. And then, this study primarily focused on validating the ONS adherence assessment scale among patients with colorectal cancer. The applicability of this scale to other populations requiring ONS, such as individuals with chronic kidney disease, digestive system disorders, or other forms of malnutrition, has not yet been investigated [22–25]. This limitation will be addressed in future research to assess the generalizability of the scale across diverse patient populations. The results of this study are mainly based on self-report and are vulnerable to

subjective influences of the current situation of the surveyed population, such as health/mood, etc. This may affect the reliability of the results of this study. Future research should involve multiple provinces and community hospitals to enhance the representativeness and generalizability of the findings. Expanding the investigation to include diverse patient demographics will enrich our understanding of ONS adherence.

5. Conclusion

The ONS adherence assessment scale developed in this study demonstrates strong reliability and validity, making it an effective tool for evaluating adherence to ONS in colorectal cancer patients. This scale serves as a reference for the future development of related assessment tools and contributes to improving nutritional management and clinical outcomes for patients with colorectal cancer.

Data Availability Statement

The datasets used or analyzed during the current study are available from the corresponding author on reasonable request.

Ethics Statement

This study was conducted according to the guidelines laid down in the Declaration of Helsinki, and all procedures involving human subjects/patients were approved by the IRB of the First Affiliated Hospital of Jinan University, NO. KY-2020-091. Written informed consent was obtained from all patients.

Consent

Please see Ethics Statement.

Conflicts of Interest

The authors declare no conflicts of interest.

Author Contributions

We declare that all the listed authors have participated actively in the study and all meet the requirements of the authorship. Manli Liu designed the study and wrote the paper, Qingran Lin and Shuxian Zhang managed the literature searches and analyses, and Mei Feng and Guihong Wu undertook the statistical analysis. All authors reviewed the manuscript.

Funding

This project was funded by the Scientific Research Project of Guangdong Nurses Association (No. gdshsxxh2023ms09); Scientific Research Fund of the First School of Clinical Medicine of Jinan University (No. 2023204); Nurturing funds for nursing young talents of Jinan University (No. JHA202306013).

Acknowledgments

The authors thank Scientific Research Project of Guangdong Nurses Association (No. gdshsxxh2023ms09); Scientific Research Fund of the First School of Clinical Medicine of Jinan University (No. 2023204); and Nurturing funds for nursing young talents of Jinan University (No. JHA202306013).

Supporting Information

Additional supporting information can be found online in the Supporting Information section.

Supporting Information 1. Supporting table 1. Questionnaire: Compliance assessment scale for oral nutritional supplements in patients with colorectal cancer.

Note. Supporting information is not modified by our production team. Authors are responsible for providing the final supporting information files that will be published along with the article.

Supporting Information 2. Supporting table 2. Gender-based comparison of questionnaire response ratings.

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