Original Article

Information needs preferences of Chinese colorectal cancer patients receiving chemotherapy: A discrete choice experiment

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A B S T R A C T

Objective: The study aims to investigate the information needs and preferences of colorectal cancer (CRC) patients undergoing chemotherapy using a discrete choice experiment (DCE) to optimize and improve the information support strategy for these patients.

Methods: Between May and July 2023, 165 patients with CRC who were receiving chemotherapy at a single hospital in China completed the questionnaire. The survey instruments included a general information questionnaire, a DCE questionnaire, and the Brief Health Literacy Screening Scale. A conditional logit model was used with Stata 16.0 software to analyze patients' preferences.

Results: A total of 159 valid questionnaires were collected, and the questionnaire response rate was 96.4%. All 7 included attributes had an impact on patients' information needs preference ($P < 0.05$). Among them, information providers, knowledge content, and social support had high relative importance, which were 12.16%, 7.57% and 2.25%, respectively. Patients showed a preference for attending doctors ($\beta = 1.9439$, $P < 0.05$) and primary nurses ($\beta = 1.7985$, $P < 0.05$). Providing knowledge related to disease basis, treatment, and health promotion also had a significant impact ($\beta = 1.6224$, $P < 0.05$).

Conclusions: Healthcare professionals should be the primary information source for patients and improve the accessibility of information by establishing professional information platforms or identifying reliable channels. It is recommended to provide continuous information on treatment and health promotion to CRC patients at various stages of chemotherapy. Attention should be paid to identifying and providing measures to alleviate the economic and psychological burden and to meet the social support needs of patients.

Introduction

The principles of cancer rehabilitation aim to improve the physical, psychological, and social functioning of individuals undergoing cancer treatment. Colorectal cancer (CRC) is a common malignant tumour in the digestive system. In China, it ranks second in incidence and fourth in mortality among all malignant tumours, with both showing an increasing trend year by year.[1] A prevalence study[2] shows that the incidence of CRC continues to rise in people over the age of 50, with men experiencing a greater disease burden than women. However, it is essential to note that its potential impact on the health of Chinese people must be objectively evaluated and clearly labelled as such. Chemotherapy is a crucial treatment for CRC as it primarily eliminates tumour cells through drug administration. While this treatment may have anti-tumour effects, it is vital to consider its potential side effects. Patients with CRC undergoing chemotherapy may experience changes in body image,[3] increased

symptom burden,[4] significant psychological distress,[5] and decreased quality of life.[6] It is crucial to address these issues in order to provide comprehensive care. The disease and its treatment will have a significant and permanent impact on the patient's physical, psychological, and social functions.

Information is a critical component of patient-centred care.[7] Providing patients with the necessary information is a fundamental medical practice that aids in comprehensive cancer recovery.[8] Studies have shown that CRC patients need a variety of information to make informed decisions about their disease, cope with treatment, and reduce their fear of recurrence.[9–12] Meeting patients' information needs has been shown to improve their self-esteem, coping ability,[13] decision-making, symptom management,[14] and preparation for the future.[15] Meeting patients' information needs is also associated with better health-related quality of life,[16] lower levels of anxiety and depression,[17] and a greater sense of control over their disease.[18] Meeting patients' information needs

is critical to meeting their perceived needs and improving various health outcomes. Therefore, meeting patients' information needs is an essential medical and nursing practice that plays a significant role in the recovery of patients with CRC during chemotherapy.

Previous studies have focused on the information needs of CRC patients. However, most of these studies have mainly evaluated the level of information needs and their influencing factors without considering patients' perspectives,[19] which raises the possibility of a gap between patients' actual needs and the provision of support services. Therefore, it is imperative to investigate the information needs and preferences of CRC patients in order to provide personalized information support that meets their needs. This approach will ultimately enhance treatment adherence and patient engagement.

In the context of patient-centred medicine, the incorporation of patient preferences into health care has become an increasingly significant topic among various stakeholders, including academics, patients, physicians, and health technology assessment agencies.[20] The discrete choice experiment (DCE) is a patient-centred approach to eliciting healthcare service needs and preferences.[21] It is based on economic theory and provides an effective mechanism for intuitively weighing service attributes and their relative importance.[22] It imitates the decision-making process in the real world. DCE has unique advantages in terms of experimental design and data analysis methods, making it a widely used approach in preference research in the health field.[23] In order to understand the real needs of CRC patients, this study aims to use a DCE to present a variety of information support programs for patients, investigate the information needs and preferences of individuals undergoing chemotherapy for CRC patients, and provide a reliable basis for medical and health institutions to formulate and adapt information support programs to meet the needs of individuals undergoing chemotherapy for CRC patients.

Methods

This study examines preferences for specific information needs using DCE. The DCE procedure was conducted following the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) checklist for constructing designs.[24] The experimental design consisted of four steps: identifying attributes and levels, constructing discrete choice sets, collecting and analyzing data, and summarizing results. Fig. 1 depicts shows the development of DCE.

Identifying attributes and levels

The DCE was used to investigate the information needs and preferences of CRC patients receiving chemotherapy. Selecting the appropriate attributes and levels that are relevant to the research question is a critical step in conducting a DCE.

Literature review

The literature review serves as an initial step in identifying the characteristics and levels of DCEs.[25–27] In this study, a systematic literature review was conducted to initially identify the information needs of patients diagnosed with colorectal cancer. Six databases, including China National Knowledge Infrastructure (CNKI), Wanfang database, VIP information resource system, Pubmed, Web of Science and EMbase were comprehensively searched.The search terms included "colon cancer,"
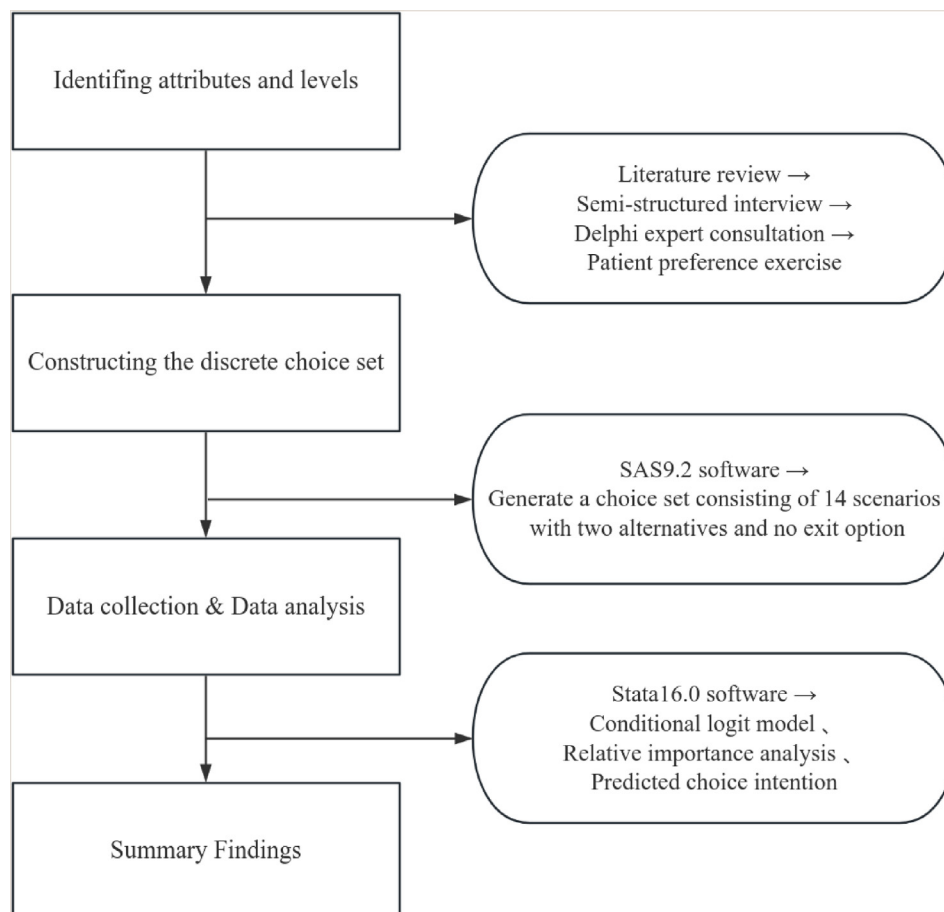

Fig. 1. A development of DCE. DCE, discrete choice experiment.

"rectal cancer" "colorectal cancer," "colonrectal tumor," "colorectal carcinoma" "colonrectal neoplasm*" and various expressions related to information needs, such as "need*" and "information need*." The search was conducted in both English and Chinese languages. There were no restrictions on study design and the publication period was from the inception of the database to 31 December 2022.

The preliminary literature search yielded a total of 486 articles; after removing duplicates, 388 remained. Following the review of titles and abstracts, we identified and retained 59 relevant articles. Upon thorough examination of the full texts, we ultimately selected a total of 26 records. A total of eight attributes were established, and due to the absence of attributes' levels in the literature reviewed, certain levels were determined based on the research team's practical experience in medical oncology. Supplementary file 1 provides comprehensive details on the literature search process and initial attributes, including their corresponding levels extracted from the literature review related to information needs in CRC populations.

Semi-structured interviews

The aim of conducting semi-structured interviews was to gain a comprehensive understanding of the disease experience among patients with CRC undergoing chemotherapy, while also expanding the scope and depth of relevant information attributes. The study was conducted in the oncology department of a tertiary hospital situated in Anhui Province. To ensure the adequacy of the interview results and the heterogeneity of interviewees, we employed purposive sampling to select inpatients with CRC who were receiving chemotherapy only, taking into account factors such as age, sex, education level and stage of disease. Prior to the interview, patients were verbally asked for consent and informed that the entire interview would be recorded and that the data would be used for research purposes only. Patients were enrolled after informed consent was obtained. Supplementary file 2 shows the specific interview outline and methods.

Finally, a total of 21 patients were included in the interviews, with male patients comprising the majority. The educational background ranged from illiteracy to a bachelor's degree, as shown in Supplementary file 2 for specific patient general information. Based on the interviews, two additional attributes were incorporated: "Presence of family members" and "Continuity of information provision." Furthermore, within the attribute of "Supplementary services," levels for "Reminder appointment" were supplemented. While under the attribute of "Access methods," levels for "Internet" were introduced.

Delphi expert consultation

The Delphi method of expert consultation can reduce subjective bias among researchers, prevent fixation on a single idea, and increase the scientific rigour of research.[28] In this step, the experts are asked to clarify the definition and description of the information need attributes and their levels, based on a literature review and semi-structured interviews. They should also delete, redefine or merge attribute levels that are unclear or repetitive. In addition, they should add or remove attributes and their levels derived from the literature review according to their clinical experience. These actions effectively reduce the interaction and multiplicability between attributes, while improving the rationality of attribute and level definition.[29]

Then, 12 experts in related fields (clinical field, clinical nurses, nursing management, psychology, public health) were selected for Delphi consultation to standardize the definition and description of each attribute and level and to suggest deletions, integrations, and additions of inappropriate items. According to the results of the Delphi expert consultation, three attributes and two levels were added, while three attributes and three levels were deleted. The definition of two attributes was clarified, and all attributes were renamed. Supplementary file 3 provides general information about the experts who participated in the consultation and the modification of specific attributes and levels based on the experts' findings.

Preference exercise

The aim of the patient preference exercise is to ensure a reasonable range of attributes in the DCE by fully considering the patient's perspective.The methodology consisted of two parts. In the first part, participants were asked to prioritise the importance of each attribute and select the seven attributes they considered most important. In the second part, participants rated the importance of each attribute on a four-point scale ranging from "very important" (4 points), "important" (3 points), "somewhat important" (2 points), and "moderately important" (1 point).

The top 7 attributes were finally identified by counting the number of times each attribute was selected, the percentage of "very important" responses and the score for each attribute. It was decided to keep the attributes that were ranked in the top seven at least twice among the three categories of ranking results. These seven attributes included information providers, methods of accessing information, knowledge content provided, medical information provided, and social support provided. Each attribute has 2–4 levels. Table 1 provides a detailed description of the included attributes and their levels. Supplementary file 4 shows the number of times each attribute was selected, the proportion of "very important," and the ranking of each attribute in obtaining the total score.

Constructing the discrete choice set and designing questionnaire

The final questionnaire consisted of three components. The first section was the DCE questionnaire. To account for the characteristics and levels specified in this study, we used a D-optimal design with the % ChoicEff macro program[30] to generate an experimental design consisting of 14 choice sets, each set containing two alternatives. The number of choice sets (14) was mainly determined based on the minimum efficient saturated data set indicated by the software operation. The relative D-efficiency of the choice set was 72.99. Given the imperative for clinical patients to receive information, an opt-out option was not included in this study. To assess both the accuracy of patient responses and the internal consistency of the questionnaire, a repeat version of the sixth scenario set was included in the choice set but excluded from the data analysis. An example of a DCE choice set is shown in Fig. 2. The second section was a self-administered general information questionnaire that included sex, age, disease type and stage, date of diagnosis, place of residence, family per capita monthly income, type of medical insurance, history of surgery, and history of chemotherapy. The third section consisted of the health literacy survey, which used the brief health literacy screening scale developed by American scientist Chew in 2004,[31] which consists of a total of three items, is convenient to use, and has demonstrated high reliability and validity.

Data collection

From May to July 2023, a convenience sampling method was employed to conduct an on-site survey in the inpatient department of a class III grade A hospital in Hefei, Anhui Province. The inclusion criteria were as follows: (1) pathologically confirmed primary CRC; (2) hospitalized patients currently undergoing chemotherapy; (3) age $\geq$ 18 years; and (4) had sufficient cognitive ability to complete the questionnaire independently or under the guidance of the investigator. The exclusion criteria were as follows: (1) patients with cognitive impairment; (2) individuals with hearing impairment; (3) patients with other concurrent tumours; and (4) patients with organic severe diseases such as heart, liver, and kidney disease. Additional exclusion criteria included questionnaires that met any of the following conditions: (1) missing information or pages within the form; (2) completion time less than 10 minutes; and (3) failing the consistency test scenarios.

The minimum sample size was determined based on Orem's rule of thumb,[32] using the following formula: $n > 500c/(t \times a)$, where t represents the selection task, a denotes the number of choices, and c represents the maximum number of levels for any attribute.

Table 1
Specific descriptions of the identified information need attributes and levels.

| Attributes	Levels	Description
Information providers	Attending doctors	Information was provided primarily by the attending doctors.
	Responsible nurses	Information was provided primarily by the responsible nurses.
	Relatives and friends	Information was provided primarily by the relatives and friends.
Access methods	Face-to-face oral communication	Information was obtained through face-to-face communication.
	Oral + text	Information was obtained through face-to-face communication and the distribution of brochures and slide shows.
	Oral + internet	After face-to-face communication, relevant information was obtained through WeChat, a special public account or an app to watch live text/video/expert broadcasts, internet expert consultations.
	Oral + text + internet	After face-to-face communication, brochures, WeChat/video, and other ways to convey information are still available.
Knowledge content	Basic knowledge of disease	Provide knowledge including disease causes, tumour location, disease stage, prognosis/progression, genetics, latest disease treatment/self-management progress.
	Disease + treatment	Provide knowledge, including basic knowledge of the disease, treatment plan, chemotherapy efficacy/process/medication knowledge, side effects, management, cost, radiotherapy, complementary or alternative treatment.
	Treatment + health promotion	We provided chemotherapy-related information and knowledge of nutrition management, diet management, daily activities/functional exercise, prevention and treatment of chemotherapy-related adverse reactions, identification of early symptoms of recurrence, lifestyle guidance (weight loss, smoking cessation), and home self-care (such as intestinal stoma).
	Disease + treatment + health promotion	Provide patients with comprehensive information on disease, treatment and health promotion.
Medical visits	Yes	The information on the medical environment, medical process and examination results query were provided.
	No	There is no need to provide information such as the medical environment, medical process and examination results query.
Social support	Yes	Provide help for patients to return to family and society, reduce psychological distress, and provide information on medical insurance reimbursement, charity benefits.
	No	There is no need to provide financial, psychological and other support.
Reminder appointment	Yes	Before the subsequent hospitalization, the patient was reminded to make a bed appointment by telephone or WeChat.
	No	There is no need to remind the next chemotherapy.
Supplementary services	Terminology explanation	Technical vocabulary needs to be explained.
	Stable information source	Information is provided by the same provider.
	Provide contact information	Provide the hospital ward official contact during hospitalization.
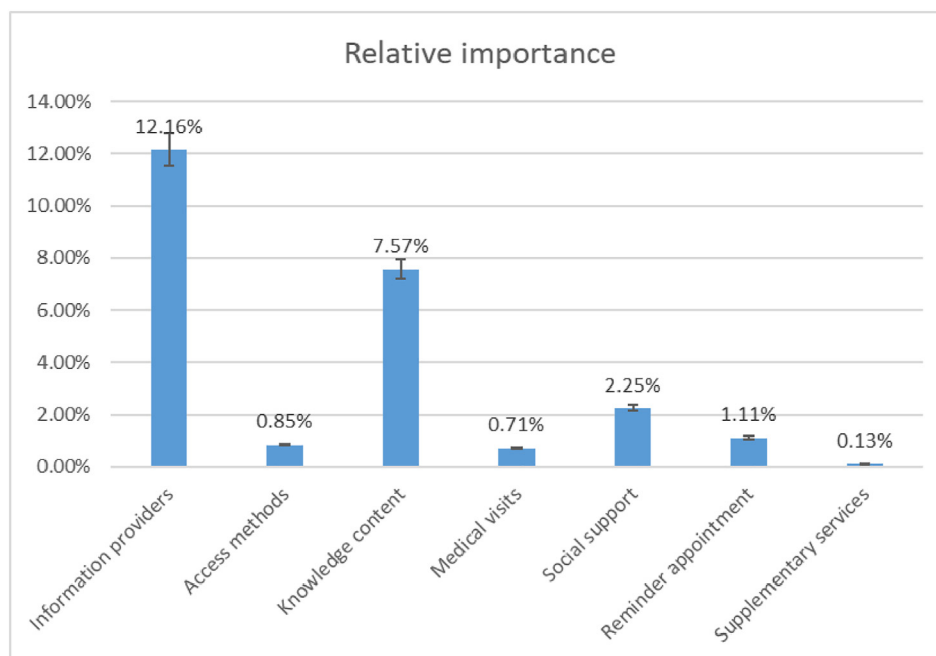
Fig. 2. Relative importance of each attribute.

Considering our study with t = 14, a = 2, and c = 4, we calculated that "n" should be greater than 72. To account for possible invalid questionnaires and to increase the statistical effect size, we planned to include a final sample of 150 participants.

Before conducting the questionnaire survey, the researcher had been practising in the oncology department for three months and had established a good relationship of trust with the patients. Get started

investigating, the patient was first asked for verbal consent and instructed to read the informed consent form, and the patient had the right to withdraw from the study at any time if they felt at risk. After obtaining informed consent from the patients, the investigators provided detailed instructions on the subject matter, objectives, precautions, and methods for completing the questionnaire. They also demonstrated how to complete the DCE questionnaire using illustrative examples. Throughout the

process, the questionnaires are filled out manually. The investigators remained present to answer any patient questions promptly and to ensure on-site distribution and collection of the questionnaires.

Data analysis

The DCE selection set was developed using SAS 9.4 software, while EXCEL 2021 and EpiData 3.1 software were used for data entry of the DCE questionnaire, general information, and health literacy scores, respectively. Upon completion of data entry and verification, data integration was performed, followed by formatting transformation of the DCE questionnaire data (Supplementary file 5). Stata 16.0 software was used to create a conditional logit model to analyze the overall information needs preference of patients with CRC during chemotherapy, while relative aittribute importance analysis was used to display residents' preferred service attributes visually. Statistical significance was considered significant at a level of $P < 0.05$.

Ethical considerations

The Ethics Committee of Anhui Medical University granted approval for this study (IRB No. 84230020). Before the survey, we provided all participants with a paper version of the informed consent, containing information about the study's topic, purpose, and their right to withdraw if they perceived any risks. To proceed with the study, we must obtain their explicit consent. Data were anonymized, securely stored, and accessible only to the research team. Interviews were conducted in private settings, and participants were assured of the confidentiality of their responses. Study findings and data presentations do not contain any identifiable information to maintain patient confidentiality.

Results

Patients characteristic

In this study, a total of 165 patients with CRC who were receiving chemotherapy were examined, and 159 questionnaires were returned, resulting in an effective rate of 96.4%. Reasons for non-response included abandonment due to difficulties in understanding, routine responses, and failure to meet the consistency test scenario. Male respondents accounted for 59.8% of the valid questionnaires. The median age was 59 years, and 50.9% were between 51 and 60 years. Overall, 66.7% of patients had stage IV. The majority had a low level of education, with 40.9% having completed primary school or less. A significant proportion lived in rural areas (47.2%) and urban areas (42.1%). Most belonged to three-person families (57.9%). Basic social health insurance coverage was high at 99.4% (Table 2).

Conditional logit model analysis

Conditional logit model analysis was conducted to examine the impact of seven attributes on the preferences for information needs among CRC patients during chemotherapy, with the choice of the respondent as the dependent variable and these attributes as independent variables. The results of the conditional logit model consist mainly of the regression coefficient (β), which represents the preference weight. The sign of the coefficient indicates the positive or negative preferences of the participants.[33] The findings revealed that various aspects of information needs, including information providers, access methods, knowledge content provision, medical information availability, social support provision, appointment reminders, and supplementary services, had a significant impact on patient preferences ($P < 0.05$).

The most influential attribute of the information needs of CRC patients receiving chemotherapy was the information provider-attending doctors (β = 1.9439), followed by information provider - responsible nurses (β = 1.7985). The second most influential attribute was providing

Table 2
Basic characteristics of the included samples ($N = 159$).

Variables	n (%)
Sex	
Male	95 (59.7)
Female	64 (40.3)
Age (years)	
28-50	34 (21.4)
51-65	81 (50.9)
66-80	44 (27.7)
Disease staging	
II	17 (10.7)
III	36 (22.6)
IV	106 (66.7)
Work status	
Working	3 (1.9)
Sick leave	26 (16.4)
Retirement	33 (20.8)
Unemployed	97 (61.0)
Level of education	
Primary school	65 (40.9)
Middle school	58 (36.5)
Senior high school	19 (11.9)
College or above	17 (10.7)
Residence	
Village	75 (47.2)
Town	17 (10.7)
City	67 (42.1)
Family structure	
Live alone	8 (5.0)
A family of two	56 (35.2)
Have children at home	92 (57.9)
Four generations in one house	3 (1.9)
Monthly income per capita (RMB)	
500-1000	3 (1.9)
1001-2000	18 (11.3)
2001-3000	53 (33.3)
3001-4000	33 (20.8)
4001-5000	29 (18.2)
> 5001	23 (14.5)

knowledge content -combination of disease, treatment, and health promotion (β = 1.6224), and the least influential attribute was medical visits - yes (β = 0.2267).

When the health care providers were consulted by physicians, the probability of selecting the information support plan was 6.987 times greater than that for their relatives and friends. Providing more comprehensive knowledge (including disease, treatment, and health promotion) increased the odds of selection by 5.065 times compared to providing only basic disease knowledge. Compared with not providing social support, providing social support increased the odds of selection by 1.998 times (Table 3).

The results of the relative importance of each attribute demonstrated that the attributes most highly valued by patients with CRC during chemotherapy were information provider (12.16%), knowledge content (7.57%), and social support (2.25%) when selecting information support programs during chemotherapy (Fig. 2).

Discussion

In this study, CRC patients' preferences for different attributes of information needs during chemotherapy were assessed using a DCE. Individual data from 159 patients were analyzed to investigate the impact of various attributes (information providers, access methods, knowledge content, medical visits, social support, reminder appointments, and additional services) on their information needs. The results showed that patients showed a strong and positive inclination towards characteristics related to information providers, with attending physicians and responsible nurses being consistently preferred as primary sources of information. To the best of our knowledge, this is the first study conducted in China to assess the information needs and preferences of CRC patients

Table 3

Conditional logit model analysis of preference for information needs.

Attributes	β	SE	P	OR (95% CI)
Information providers (Take relatives and friends as reference)				
Attending doctors	1.9439	0.0928	< 0.001	6.987 (5.824, 8.380)
Responsible nurses	1.7985	0.0908	< 0.001	6.040 (5.056, 7.218)
Access methods (Take combination of oral, text and internet as reference)				
Face-to-face oral communication	0.4774	0.1091	< 0.001	1.612 (1.302, 1.996)
Oral + text	0.4330	0.0991	< 0.001	1.542 (1.270, 1.873)
Oral + internet	−0.0731	0.0998	0.463	0.929 (0.764, 1.130)
Knowledge content (Take basic knowledge of disease as reference)				
Disease + treatment	0.5930	0.1041	< 0.001	1.809 (1.476, 2.219)
Treatment + health promotion	1.5171	0.1087	< 0.001	4.556 (3.684, 5.641)
Combination of disease, treatment, and health promotion	1.6224	0.1061	< 0.001	5.065 (4.114, 6.236)
Medical visits (Take No as reference)				
Yes	0.2267	0.0742	0.002	1.254 (1.085, 1.451)
Social support (Take No as reference)				
Yes	0.6923	0.0723	< 0.001	1.998 (1.734, 2.302)
Reminder appointment (Take No as reference)				
Yes	0.4083	0.0736	< 0.001	1.504 (1.302, 1.738)
Supplementary services (Take provide contact information as reference)				
Terminology explanation	−0.1639	0.0927	0.077	0.849 (0.708, 1.018)
Stable information source	−0.2762	0.0885	0.002	0.759 (0.638, 0.902)

Observed value = 4452; LR $\chi^2(13)$ = 1343.82; Prob > χ^2 = 0.000; Log likelihood = −2111.7517; Pseudo r^2 = 0.2414.

undergoing chemotherapy. Our research provides valuable insights into patient preferences and can inform clinical decision-making in China.

Cancer patients have complex and deeply personal needs and preferences, which can be difficult to measure. Many factors influence these preferences, making it challenging to use standard questionnaires to gather patient input and weigh different factors. DCE can help create real-world scenarios to allow patients to make trade-offs, offering valuable insights into their needs and preferences. In this study, the relevant attributes and levels of information needs were determined by multiple methods, which reduced the possibility of missing relevant attributes. The discrete choice set allows the investigation of preferences across multiple attributes in a single question, reducing survey item complexity and respondent burden.[34] Moreover, DCE can quantify the overall preference degree of the respondents for different attributes and intuitively display their preferences.[35]

The findings of this study demonstrated that the information provider attribute was identified as the most important factor in meeting the information needs of CRC patients undergoing chemotherapy. Specifically, receiving information support from attending doctors or responsible nurses was preferred to receiving information support from relatives and friends, by this particular population. Similarly, the mixed results of Ludwigson et al.[36] also indicated that health professionals were preferred as a source of information for breast cancer survivors. However, these preferences may vary depending on the specific information needs and access methods of the patients themselves.[37] One remaining scenario is when there is a mismatch between the patient's preferred source of information and the actual source.[38] This implies that not all patients receive the same degree of information coverage.[37] Therefore, expanding the range of professional information sources is an effective strategy to meet the information needs of CRC patients receiving chemotherapy.

As the Internet has become a valuable resource for those seeking information about cancer. The availability of network technology has made it possible for those with access to the Internet to obtain information about cancer and cancer survivors.[39] In the future, it is recommended that Chinese healthcare professionals develop and provide professional information support platforms covering CRC health promotion, interpreting medical results, seeking professional help, designing relevant educational materials, or improving existing platforms such as websites with relevant content, and assess and guide CRC patients undergoing chemotherapy to visit reputable websites/apps that provide targeted resources and education while addressing their specific information needs through these online platforms.

The results of this study showed that knowledge content had a significant preference weight and that CRC patients undergoing chemotherapy had a significant need for treatment and health promotion knowledge. As patients progress through their cancer journey, their information needs may change to focus more on managing long-term effects, coping resources, and transitioning to daily life.[8] In the long term, this information has proven beneficial in helping patients plan for the future, improving their lifestyle choices, and enhancing their overall quality of life.[40] Therefore, those involved in treatment and rehabilitation should offer guidance on promoting health, such as recovering after surgery, caring for a stoma, managing symptoms, maintaining a healthy diet, participating in daily activities, and other aspects of health promotion. It's also important for patients to quickly recognize recurring symptoms, as this can raise their awareness of self-management and improve their ability to manage health. Research has shown that even years after initial diagnosis, people with CRC continue to have significant needs for symptom management, future expectations, nutritional advice, physical activity recommendations, and other relevant content.[7] Establishing a comprehensive information support system or follow-up mechanism that integrates multidisciplinary and community is an effective approach for healthcare professionals to proactively address the information needs of cancer patients. In this manner, patients can continuously receive disease-related, treatment-related, and health-promoting knowledge, especially during the home rehabilitation phase.

The study revealed that social support significantly influenced the information needs of CRC patients during chemotherapy. Patients preferred information programs that included social support. The study focused on two main types of social support: economic support and psychological support. Financial demands are among the most common needs experienced by people with advanced cancer, and research has demonstrated a high prevalence of economic toxicity within the CRC population.[41] The economic burden for patients with advanced CRC is significantly greater. Factors such as unemployment, low income, disease progression, prolonged chemotherapy cycles, and limited understanding of health insurance reimbursement policies all contribute to the financial distress experienced by patients with CRC.[38] Healthcare professionals should proactively identify early risk factors and provide patients with comprehensive information about health insurance, benefits policies,

and upfront estimates of cancer treatment costs to mitigate the potential economic burden faced by patients requiring foot care. The psychological distress experienced by CRC patients stems primarily from emotional challenges such as fear of cancer recurrence and anxiety, as well as physical issues such as pain, fatigue, and ostomy resulting from treatment.[42,43] In clinical practice, it is imperative to establish a robust therapeutic alliance with patients, provide comprehensive emotional counselling, and ensure collaborative disease monitoring between healthcare professionals and patients. In addition, the active engagement of caregivers is essential to promote the psychological well-being of cancer patients through family-centred interventions. Notably, a significant association between financial toxicity and psychological distress has been observed in cancer patients undergoing chemotherapy.[43] Therefore, the comprehensiveness and pertinence of social support information should be given utmost attention by healthcare professionals to enhance the perceived benefits to patients.

Limitations

This study has a few limitations. Firstly, the study population was limited to patients from a medical research site, which constrains the generalizability of the study results. Secondly, the DCE questionnaire included only seven attributes, which may not fully capture the relative importance of other attributes (e.g., Family members present, The duration of the information provided) in influencing patient information demand preferences. Future research will consider expanding the sample size by including more participants from diverse backgrounds and conducting multi-centre surveys to analyze the heterogeneity of information needs among these individuals. This will provide insights for early identification of the unique needs and preferences.

Conclusions

Based on a DCE, this study comprehensively investigated and explored the information needs and preferences of CRC patients during chemotherapy by using a conditional logit model and analyzing attributes of relative importance. To ensure patients receive high-quality and targeted information, medical staff should be the primary source of information. It is recommended that medical professionals expand the channels of patient information access on the basis of ensuring the professionalism of information sources. The specific information given to CRC patients during chemotherapy should cover treatment and health promotion. Patients undergoing chemotherapy are at risk of economic toxicity and psychological distress. It is imperative that medical and nursing staff enhance their awareness of this aspect and promptly identify the related risk factors of patients.

Ethics statement

The Ethics Committee of Anhui Medical University granted approval for this study (IRB No. 84230020). All participants provided informed consent.

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CRediT authorship contribution statement

Linlin Li was mainly responsible for the conceptualization, data curation, formal analysis, funding acquisition, investigation, methodology, visualization, writing-original draft and writing – review & editing.

Liu Xueli, Zhou Wanjun and Zhang Yavin were mainly responsible for conceptualization, investigation, methodology. Zhang Xinqiong was responsible for the conceptualization, resources, software and validation. Linlin Li and Xinqiong Zhang were responsible for the entire article. All the authors approved the final draft of the manuscript.

Declaration of competing interest

The authors declare no conflict of interest.

Data availability statement

The authors confirm that the data supporting the findings of this study are available within the article and its supplementary materials.

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Declaration of generative AI and AI-assisted technologies in the writing process

No AI tools/services were used during the preparation of this work.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.apjon.2024.100551.

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